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THE PHILOSOPHICAL REVIEW.

PREFATORY NOTE.

WITH the present number the REVIEW enters upon its second quarter century. The articles which appear at this time have been written as contributions to a survey of the progress of philosophy in some of its main departments since the foundation of the REVIEW in 1892. A variety of circumstances, of which the most important is the continuation of the disastrous European war, has made it impossible to present at this time as complete an account of philosophical movements during this period as was originally planned and intended. So far as France and Germany are concerned, this most unfortunate gap in the present survey is to some extent filled by the very able and detailed articles which the REVIEW has published from year to year on the progress of philosophy in these countries.

The articles contained in the present number are concerned mainly with philosophy in the English speaking world, and to a large extent with the developments that have taken place in this country. Although no account is here given of the important developments which have occurred during the past few years in the field of Religion, and in the Philosophy of Law, these movements are of great importance and must be included in attempting to compare the position of philosophy and of philosophical study in the United States with that which it occupied

twenty-five years ago. In the light of the retrospect and comparison furnished by the articles published on the present occasion, the prediction of President Schurman, the Founder of the Review, in the prefatory note with which the first number opened, that we were on the eve of a new philosophical movement in America, may appear to be confirmed.

A retrospect of the past, however, although it may bring encouragement and confidence, is not intended as an occasion for self-glorification. In America, it must lead us to recognize how much we owe in philosophy to Europe and to European writers. Our ambition is not to develop an independent American philosophy and science, but to cultivate these interests within our own soil so that we may have something to give in exchange for what we have received and are receiving. At the present time, when the conditions in the warring countries make it difficult or impossible for European scholars to carry on their work, a special responsibility rests upon their colleagues in America to maintain and strengthen the spirit of science and of free inquiry. This responsibility must be assumed, both for the sake of our own civilization, and in recognition of our obligation to the countries from which we have hitherto drawn our chief intellectual support and stimulus. If the spirit of scholarship and inquiry is not carried forward, it becomes weakened and tends to disappear; if the conditions in the principal European countries have largely brought to a standstill the work of philosophical inquiry there, the loss must be made good, so far as this is possible, by more earnest efforts on the part of those who represent this subject in countries where these unfortunate conditions do not prevail. In the United States the work that has already been accomplished in recent years may well support and inspire us in taking up this task.

At the time of the foundation of the REVIEW, the Editor wrote in the first number: "There does not exist among us any periodical organ which concerns itself exclusively with Philosophy in general, or even any academy or a society which, in the absence of such an organ, might bring the philosophical minds of the nation into fruitful cooperation for the promotion of their common object. There is neither an organ nor an organization of philosophical activity in America." Since the time when these sentences were written, more than one organ of philosophical activity has been established and maintained among us, and several philosophical associations have been organized and continue in active operation in different parts of this country. The progress which has been made in these directions is highly significant in the light of the duties and obligations which now confront American philosophical scholars.

In entering upon its second quarter century the REVIEW has no new policy to announce. It will continue, following the program adhered to from the beginning, to "aim at the organization, the diffusion, and the increase of philosophical knowledge," and will remain, in accordance with the terms of its original endowment, "an absolutely free organ, national and international, of general Philosophy."

J. E. C.

REALISM AND METAPHYSIC.

I HAVE been asked to say a word which may recall the philosophical situation prior to the year 1892 in which the PHILOSOPHICAL REVIEW came into existence. And I shall be glad, in doing so, to contribute so far as I can to rectify what seems to me a fundamental error in the appreciation of philosophical movements during the last hundred years, an error which some at least among the recent advocates of realism have made their own. I shall, indeed, be in the main expanding a brief observation which I have previously made with reference to the New Realism.[1]

But first, one word of introduction. It is admittedly essential to philosophy that we should enter upon it without prejudices, and follow the argument where it may lead us. Now there is one fundamental opinion which the habits of common sense and the practice of daily life impose inevitably upon us. And this opinion I am convinced that we should be ready—I do not say more than 'ready'—to discard as a prejudice, if we find that it interferes with pushing problems to the end in philosophy. I mean the opinion that parts of our beliefs and theories, or certain elements which we assume in our reading of our world, can be left alone, so to speak, to stand by themselves, while we proceed to establish the rest, and then to build the parts of our plan together one by one. The specialism of practice and common sense necessitates this procedure. But in approaching the task of framing a general view of things, of thinking our experience as far as possible all together, the conditions are obviously different; and if our everyday beliefs prove to demand a supplementation which takes us quite outside our everyday habit of mind, there is no general presumption against such a result. The nature of our enterprise, as contrasted with that of living the specialized life of every day, may quite well necessitate such a

[1] See Adamson Lecture, 1913, *Distinction between the Mind and Its Objects*, p. 51.

modification of our habitual attitude. We must not say beforehand that it does. But we must not say beforehand that it does not.

I add, from my personal experience, that I believe the presumption to be the other way. With the strongest predilection for rationalistic simplicity, and after the most resolute efforts to follow out a realistic empiricism, I have never in the long run found it possible to construe the world without an element which might be called mystical. And as in philosophy the end must always qualify the beginning, I now hold it a positive disadvantage in a philosophical doctrine to interpret ultimately even the most ordinary routine of common sense without demanding a quite unusual attitude and effort from our minds. If you tell me that for common life and practice I am to be content with my every day routine of action and perception, I fully agree—it is an obvious necessity. But if you tell me that I am to accept this type of experience in full of all demands—'there is no deception and what more do you want?'—I have always found that one cannot be satisfied so. One's own separateness, for instance, from others and from the physical world, becomes untenable at the first symptom of moral difficulty; and the moment reflection begins it is clear that we are 'moving about in worlds not realized.' The relation of our dream-life to our waking life, for example, is full of puzzles that may carry us almost any distance from our normal point of view. How far in detail the revelation may take us, is the substantive problem of philosophy itself. But that an easy construction, building up a universe out of an aggregate of *prima facie* data, has a heavy presumption against it, I am personally sure.

What I say in general, however, is merely that it has no presumption for it. There is no presumption that the whole of things will be as easily construed as everyday practice and perception appear to be. Take for example the idea of a God much like one of ourselves, only stronger and better. It is *prima facie* natural, but under any serious strain becomes plainly unworkable. If we are driven to think of reality in a way which seems hard and strange, and if we have to bring this way of thinking

to correct the assumptions of our current moods, there is no reason at all to be surprised; but, as I have added from my own experience, the reverse.

The point of the above digression with respect to the subject of the present paper is this; that while I strongly sympathize with Realism as an initial attitude, it seems to me not likely to furnish a complete philosophical doctrine. It seems more probable that the aggregate world of first appearances, which vindicates a definite place and pretensions for itself, will appear to rest ultimately on a far deeper mode of consideration, to apply which in the moments of ordinary experience would involve a serious effort and self-transformation. On the other hand, I should therefore expect the balance of truth as between theories of this type to rest with that which accepts the first appearances in their completeness, and does not claim to have attained reality at some halfway house of its own contriving; that is, in this case, with naïve realism, rather than with that which claims to be critical or scientific.

The issue which I wish to raise in this paper is fundamental for the appreciation of the philosophical movement of the nineteenth century; and for that of the twentieth century also, so far as it has developed. It is a broad issue, and I will put it broadly.

To the best of my judgment the main succession of philosophical phases from 1800 to the present day may be briefly stated thus. Against the epistemological tendency in Kant the post-Kantian 'idealism' raised the banner of metaphysic, of the direct investigation of the real, condemning as irrational *ab initio* the doubt and the inquiry whether knowledge is possible. This constructive speculation—for myself I reject the term idealism—was followed after a generation in the country of its birth by a cold fit of scepticism expressing itself in a recurrence to Kant's epistemological or critical mood, and consequently to the theory of cognition. This movement essentially rested on that doubt as to the possibility of knowledge, which the direct speculative impulse had repudiated.

But by this time the speculative movement, in its affirmative and constructive character, was finding a second and more

congenial home in the English-speaking world, with the spirit of which its direct audacity, its decisive rejection of representative ideas in favor of directly apprehended unities—such for example as the living social unity—proved itself immediately akin.

Thus while the epistemological attitude was predominant in German thought, as a distinct 'critical' reaction against the primary and affirmative influence of Kant, that same influence was asserting itself elsewhere in the fresher and more originative medium of minds inspired by the English habit of handling the actual world—of self-government and self-expression. What had been in its German atmosphere set down with some justification as romance, became in the English-speaking arena of vital politics, industry, poetry, and religion, a literal transcript of experience. The new world awoke to its significance, and here, as often before, did much "to redress the balance of the old."

Even in Germany, however, there were signs towards the close of the century that the epistemological reaction had spent itself. Along with various forms of realism the return to metaphysic was being advocated,—the conjunction suggesting, what I have maintained and wish here to maintain, that the direction of realism and of constructive metaphysic is in the main identical.[1] And after nearly a hundred years the expression was heard once more that " theory of cognition " is self-contradictory.[2]

Thus the successive phases of nineteenth century philosophy, to the best of my judgment, may be roughly summarized, as, in Germany, Metaphysic, Epistemology, and Metaphysic again, the latter supplemented in its recurrence by realism; in the English-speaking countries, Empiricism, Metaphysic, and again an outburst of Realism, supplying, in my opinion, a desirable 'left' to the metaphysical movement itself.

"Empiricism, Metaphysic, Metaphysic with a realist left"—this expresses my conception of the sequence in English-speaking philosophy. To this opinion I gather that that of the Realist

[1] For an analogous contention, advanced with a certain just reservation, see Professor Creighton's paper, "The Copernican Revolution in Philosophy," PHILOSOPHICAL REVIEW, March, 1913.

[2] Nelson at the Bologna Congress of Philosophy, *Acts* 1, 266.

brotherhood in the New World at least is diametrically opposed. It would replace the second term in the sequence ascribed to English thought by some such expression as 'critical epistemology' or 'theory of cognition,' and conceives the rehabilitation of positive inquiry, free from epistemological scruples, to be reserved for itself—the new realism—as an attitude in no way akin to that of the previous 'idealistic' metaphysic, nor in alliance with it. Assuming that it recognizes, as I suppose it must, Mill's Empiricism as marking the phase previous to Green and his kindred, its sequence would run, *not* "Empiricism, Metaphysic, Metaphysic with a realistic left"; *but* "Empiricism, Critical or Psychological Epistemology, Realism in reaction against the latter"; and correspondingly for Germany, *not* "Metaphysic, Theory of Knowledge or Epistemology, and a reviving Metaphysic with a realistic left"; *but* "Epistemology, or critical theory of Cognition from Kant onwards, followed—not till near the close of the century—by beginnings of realism in which alone the rehabilitation of true Metaphysic is to be looked for."

As I understand the question, the change in spirit which came about with the development of post-Kantian speculative philosophy was this. All difficulties about the general possibility—the possibility in principle—of apprehending reality in knowledge and perception were flung aside as antiquated lumber. What was undertaken was the direct adventure of knowing; of shaping a view of the universe which would include and express reality in its completeness. The test and criterion was not any speculative assumption of any kind whatever. It was the direct work of the function of knowledge in exhibiting what could and what could not maintain itself when all the facts were confronted and set in the order they themselves demanded. The method of the inquiry was ideal experiment.[1] Would this or that hold, or how far would it hold, when you came to think it together with all relevant elements in their order? *Not* 'How did you get it?' 'Where did it spring from?', *but* 'Does it hold

[1] *Cf.* Bradley, *Essays on Truth and Reality*, p. 311, and see *Germany in the Nineteenth Century*, p. 193.

water?' 'Does it enable us to think all the facts together?' was what speculation now began to ask about any thesis suggested to it. It is constantly accused of *a priori* philosophizing. But in fact for such a method the characteristic meanings of *a priori* and its opposite are destroyed. Theses are *a priori* in proportion as the whole before you makes them inevitable, and in no other sense.

Thus the speculative movement entirely dismissed and ignored that primary doubt, so often ascribed to Idealism, as to the direct apprehension and real existence of external nature. Matter, the externality of things to things, was to Hegel, for example, a necessary way of being in which one great characteristic of the universe found its indispensable expression. Nothing is more obvious than that he took it at its face value, and considered it with reference to its function in the general order of the world. How it could exist in the absence of sense-perception was a problem which did not trouble him. Critics, themselves touched by psychological idealism, may argue that it ought to have done so; but they will never begin to understand the movement which he led unless and until they see that this is not one of its preoccupations. It considers the outer world, the world of nature, as it does every factor of experience, at its fullest, that is to say, as it is when most completely apprehended. It is altogether free from the assumption on which some forms of realism are founded, that to advance toward the real you must look to what persists under the minimum of conditions. No doubt if challenged on the point of unperceived existence he would have had his answer, probably on the line that interruption of existence or relapse into a minimum of conditions, such as constantly befalls the human consciousness, is no impediment to a thing's reality. What matters is rather to take the thing at its maximum, at the richest point of its development in experience. Suppose that this involves a complex of conditions, such as a spectator in the shape of a percipient organism. Why not? You will get within the universe nothing unconditioned, and if you want to appreciate what things are at their maximum, you must give them their full context. And this is what we find

the speculative philosophers doing, with the result that the thing as a whole with all its qualities, primary, secondary, or tertiary (*e. g.* æsthetic), is for them the real thing—the thing with all that belongs to it, all that has an equal claim to be regarded as part of it. What science tells us of the physical thing is, I take it, a further set of determinations, belonging to the same thing which we perceive in sense-perception, explaining its sensuous properties and so to speak embodying itself in them as a law in facts.[1]

Illusion presents no difficulty. It is simply a real, apprehended together with an untenable interpretation. And every apprehended real without any exception has attached to it some such element of illusion. Its difference from reality is a matter of degree. It is obvious that you misinterpret at some point everything you perceive. Realism makes no whit of difference to the necessity of this admission, but recognizes it and debits it to imperfect apprehension.

What has been said of the chief post-Kantians does not apply to the panpsychists. But they have never belonged to the center of that movement to which, in order to avoid the ambiguous term Idealism, I am at present applying the name of speculative philosophy. They have desired to nibble away the fact of externality, and in the intention, whether right or wrong, they have been opposed to the main current of speculative philosophy.

The speculative philosopher, then, proceeds to know the world as he finds it; he has no prejudices, no *a priori* principles *ab initio* or 'reasonings' 'from above,'[2] such as a misapprehension of logical method ascribes to him. But in the consideration of what he finds, degrees of stability, self-maintenance, value, force themselves upon him, and these of course must be given their weight. And reality, in the deeper sense, the capacity to afford

[1] Husserl, *Jahrbuch*, 1913, pp. 99 ff.

[2] '*Von oben her postulieren*' and similar phrases, *e. g.* in Husserl, *op. cit.*, p. 36, and elsewhere. See on the anti-metaphysical superstitions surviving into the metaphysical revival in Germany, *Germany in the Nineteenth Century*, pp. 208 ff. *Cf. The New Realism*, pp. 16–17, 45 ff. For the views really held in common, *ibid.*, pp. 66–7.

ultimate satisfaction, must be assigned in accordance with the teachings of organized experience. Not before, but after, he has considered, for example, the spatial object as most truly experienced, and has gone forward to its position and relations among the influences and features of the universe, it may become necessary to recognize that its value and self-assertion among real powers do not lie mainly in its immediate external being, but in some other character or relation attaching to it. This is an old story, the story of a speck of color or the vibration of a string. "The paper and ink cut the throats of men, and the sound of a breath may shake the world."[1] Speculative philosophy, as we saw, is unlikely to leave anything standing, independent and unshaken in its *prima facie* nature. It is perhaps a dangerous expression to say that in philosophy we watch the transformation of the original things. That mode of speech abandons the position of vantage *ab initio* to first appearances, often quite untenable, and raises unnecessarily the problem of external relations. It is truer in fact to say, as all education and every kind of training tell us, that things cannot at first be apprehended as they are; and that the element of illusion is minimized only when experience is maximized. What we watch in philosophy is not transformation, but the emergence of fact and truth.

It is in this sense, and in this sense only, that speculative philosophy throws a doubt on the reality (not on the existence) of the external world. A thing may hold and make good up to a certain point, and yet not ultimately. That is the lesson of experience and the teaching of speculative philosophy.

I hesitated whether to support the above account by citations, for example, from Hegel, Green, Caird, and Wallace. But it really seemed unnecessary to fill the REVIEW with such familiar matter as the opening pages of Hegel's *Phenomenology of Mind* (Introduction), or Green's discussion of Herbert Spencer, or Caird's paper on "Idealism and Theory of Knowledge,"[2] or Wallace's Essays, introductory to Hegel's *Philosophy of Mind*.

[1] Bradley, *Principles of Logic*, p. 4.

[2] *Proceedings of the British Academy*, Vol. I. p. 4. I take it that this is the same paper which Professor Creighton quotes in his article referred to above. For reference to Green and Wallace see my Adamson lecture above cited, pp. 55

It is really quite certain as a fact that speculative philosophers of the type to which these belong have always accepted external nature as an existent feature and characteristic of the universe—I do not say self-existent because that would on their views be unmeaning. They have always sharply repudiated the conception that the mind is a sort of vessel of ideas in the sense of phantoms of things, a transition from which to knowledge we have to justify by Epistemology. Professor Wallace, as I have pointed out before, states the meaning of calling any object an idea precisely as Professor Alexander states it. It is through and by externality, according to these thinkers, that the mind is able to learn and to act.

Thus the position of speculative philosophy as I understand it, covers the position of realism in so far as that is not eclectic. The enemy, for it, is not the fuller realism sometimes called naïve, which we find for instance in Avenarius and Schuppe, along with the recommencements of metaphysic in German thought. There is however perhaps a realism which is the enemy, and this is the theoretical or critical realism which is obsessed by the question how an external world can exist when unperceived, and offers a system of physical things as its true but inaccessible reality. It is not the alleged structure of the physical thing to which philosophy can raise any objection. That is a matter for science exclusively. It is its being offered as *the* reality of the sensible object. And this thesis is philosophy and not science.

Therefore, the following is, so far as I can see, the relation of speculative philosophy, as known in the English-speaking world before 1892, to the realistic movement which was beginning about that time in Germany and elsewhere. With the intention of naïve realism—the realism which accepts as a factor of our world *prima facie*[1] on equal terms with every other, external

and 57. But references are quite needless to any one familiar with the movement. I have not discussed Mr. Bradley's view, as he has himself explained it in more passages than one. It falls in general, I think, under the description given above. It should be noted that he rejects any such science as the theory of cognition. *Appearance and Reality*, p. 76.

[1] I say *prima facie*, not that I wish to enter a *caveat* against its right to be considered a full existent, but because I do not think it possible to pledge one's self

nature in the fulness of its qualities and its beauty—it is in the main at one. It welcomes this movement as appreciative, so far as it goes, of something which certainly fills an important part—a part to our thinking quite indispensable—in the structure of the universe; something through which, it has been said, man's own mind is evermore communicated to him.[1] In a very wide sense, though not in the sense of the technical controversy, the mind and its sense-organs may even be regarded as 'instrumental' in the apprehension of the outer world. That is to say, the full experience is naturally considered along with the conditions essential to it and accepted as thus offered; and there is no sense in seeking for some further reality behind it by abstracting those conditions. Speculative philosophy, as I see the matter, should be glad to join hands with a movement which banishes the initial doubt whether knowledge is knowledge, and takes what presents itself as it comes. Ultimate questions of reality, as I have said, arise afterwards. Space and time with their contents will do something for us; but will not do everything, nor answer all questions. In this sense, they are open to criticism; but after they have been received as elements of knowledge, and not before. It is one thing to say, 'These factors of reality differ in value, stability, solidity.' It is another thing to raise a preliminary doubt whether in our apprehensions of some among them we are attaining reality at all. There is a realism therefore—and to be plain, I will take as an example that which has been formulated by Professor Alexander—which seems to me well adapted to form the extreme left of a speculative metaphysical movement. It is essential to such a realism, as I see the question, to treat all thought, including perception, as *ipso facto* an apprehension of reality; to take primary and secondary qualities as in the same relation to mind, and to keep clear of materialism; to recognize universals as real, and to keep clear of nominalism. If, further, it promises a liberation from the tyranny of the substantial soul, and a freer construction of the external object[2]

that the degrees of reality of all existents shall ultimately be held the same. No one, *e. g.* who believes in God would admit that a tree is as real as he is.

[1] Green, *Works*, III, p. 4.

[2] I sympathize with *The New Realism* on the 'brickbat' account of the object, p. 371. *Cf.* Nunn, *Proc. Arist. Soc.*, 1909–10, pp. 206–7.

and concept of what is meant by its 'presence,' it certainly seems to me that there is a high degree of kinship between such a mode of thinking and speculative philosophy.

It thus becomes a minor matter, though still a test question of philosophical insight, whether the very nature of spatial objects admits at all of the idea of a final or absolute apprehension of them, or whether it is not a relatively *a priori* necessity that the apprehension of them can only be given in a series *ad infinitum* of gradations and variations determined by points of view.[1] It seems to me that this consequence follows if a finite percipient mind is in principle inseparable from a sentient organism. If a finite percipient mind could, *per impossibile*, exist unattached to a sentient body, would it not, in perceiving, become the mind of the object perceived?

But it is in the end, as I said, a minor matter what becomes of the object when or if unperceived by any finite mind. It is enough to be sure that when we apprehend it, we apprehend it as it is under its appropriate conditions, and as an element within a systematic world. This assurance comes to us when we demand, as we have a right to demand, a positive ground for the epistemological doubt, and find that none is forthcoming. And the recognition of this fundamental fact is, I take it, the common basis of realism and of speculative philosophy. *Not* 'Can we know the real?' *but* 'What is in detail the real which we know?' seems to be the question to which both attempt an answer; an answer which depends on the actual achievement of knowledge, and not on an antecedent theory of it.

I have thus every hope that the realistic movement will blend with the element in speculative philosophy which I have been attempting to emphasize; and will in that way finally destroy the equivocation which still attaches to the name of Idealism. Further vistas open before it in such problems as Mr. Bradley has raised in his essay "What is the real Julius Cæsar?"—problems, it might be said, of the real presence to thought and

[1] Husserl, *Jahrbuch*, 1913, pp. 74, 81, 98. *In this sense* the 'physical thing' too would be in principle an appearance, and one who insisted on reaching final apprehension would have to prolong his search beyond it again *ad infinitum*.

apprehension. In view of such problems, I do not believe that an individualistic doctrine of substances will ultimately satisfy it. It will return, I am convinced, to a more fluid conception of graduated and continuous reality, but no doubt with a renewed emphasis, which is certainly desirable, on the necessity of an external world as the datum and medium of finite thought and action.

This is my reading of the philosophical situation before 1892, in the light of what has happened since.

BERNARD BOSANQUET.

PHILOSOPHICAL AND SCIENTIFIC SPECIALIZATION.

IT is commonly agreed that the period from the mid-nineteenth century until about 1890 is one in which the study of metaphysics was at a low ebb. How German scholarship turned with the disgust of satiety from the all-dominating metaphysics of Hegel and immersed itself in the detailed, factual study of the physical sciences and of history is an oft-told story. For the time being philosophical study was identified with special disciplines such as theory of knowledge, the history of philosophy, psychology, and ethics, which were pursued for the most part without any serious attempt at correlation. The 'Return to Kant' which had become the ideal of German scholars of the second generation after Hegel, produced critical and philological apparatus of a thoroughness unexampled in the history of philosophy, but it treated the study of Kant as if it were an end rather than the means for the development of a new constructive point of view. Here and there, indeed, as in the philosophy of Herbert Spencer or the monism of Ernst Haeckel, attempts were made at broad and synthetic generalization, but the content of these philosophies was confined to a few exceedingly general and very abstract principles, such as the universality of causation or the conservation of energy, which in origin were not themselves the product of the period in question. Materialism, which a generation before had appeared as the scientist's last word in philosophy, proved too metaphysical for the prevailing distrust of metaphysics. The typical attitude of the period is to be found rather in positivism, if this word be used not only for the philosophy of Comte but also for the many similar but historically independent philosophies which aimed to be specifically anti-metaphysical.[1]

The distaste for metaphysics, however, was itself only a symptom of an intellectual change which affected the special sciences

[1] *Cf.* W. Stern's *Vorgedanken zur Weltanschauung*, pp. 47 ff.

almost as much as it did philosophy. Never before had scientific specialization gone so far not only in marking off science from philosophy but also science from science. It was recognized that such specialization was a necessary condition of empirical investigation, and it was therefore welcomed, even in cases where specialization extended to incoördination. It was a period, one might almost say, of glorification of the varying 'points of view' of the different sciences. The time had gone by when a science could mark out for itself an exclusive subject matter which it could regard as its own peculiar property. Chemistry had made itself indispensable in the study of organic processes, and the concept of energy had enabled physics to consolidate its modes of dealing with many phenomena superficially quite diverse. But if there were no longer exclusive subject matters, there might still be exclusive points of view. A science was distinguished as the possessor of such and such categories, more or less clearly defined, and its problem was conceived as the application of these categories to all subject matters which would in any way lend themselves to such treatment. When the application of a given set of categories reached its limit, any outstanding problems had to be turned over to some other science. When, for example, Weismann had introduced into the study of inheritance as elaborate a system of hypothetical elements and compounds as he could well manage, he turned the problem of variation over to the chemist. Conversely, if the chemist met a bit of organization which proved recalcitrant after he had done his best at analysis, this could be turned over to the biologist. When worse came to worst, a problem which baffled everybody could still be passed on, not hopefully but rather in the mistrust of a better disposition of it, to a hypothetical metaphysician. By a judicious use of this transference of problems, a science could always maintain its autonomy and keep its unsolved difficulties in a state of decent unobtrusiveness.

It is easy to find fault with this period as one of disorganization and philosophical superficiality, and one can judge from various signs that its day is past. And yet when the balance is finally struck, the gains will perhaps be as obvious as the losses. Never

before was technical proficiency so carefully considered or so perfectly achieved. Never before was the extent of knowledge so greatly increased in a similar space of time or generalization based upon a larger or more systematically sought body of facts. Never was the intellectual conscience more tender or the reverence for accuracy and objectivity deeper or more wide-spread among scholars. And all these are phases of the intellectual life with which, it is safe to predict, no future period will be content to dispense. It must be recognized, indeed, that the search for facts in all departments of experience and the proliferation of specialties and subdivision among the sciences are indispensable phases of modern intellectual development. It is the parallel, and in part both the corollary and the presupposition, of modern industrial technology, which has destroyed the old distinctions of trades and crafts, of classes and castes, in order to mark new distinctions in new places.

Without attempting to assess the merits or the demerits of such a period as that in question, we may nevertheless hazard the guess that an isolation of science from science and of science from philosophy will not prove permanently satisfactory. In one way or another a higher degree of system will sooner or later be sought. Whether metaphysics will ever regain the position which it held a century ago is indeed open to doubt. Certainly it has not done so and there are, for the present, no signs that it will, though open unfriendliness between science and metaphysics is relatively rare. What is much more certain is that at any rate the various lines of scientific investigation will themselves draw closer together and mutually influence each other more than was allowed for by the logic of a period whose watch-word was positivism. Such interaction can scarcely be dispensed with by the sciences themselves and it is the vital condition for an effective metaphysics. For in such interactions relationships are implied which are the material of metaphysical investigation even before they are systematically stated. The greatest promise which the last twenty-five years have held for philosophy arises from the establishment of such relationships, particularly between biology and psychology and between psychology and philosophy.

Before we examine this interaction of sciences, however, it will be well to illustrate the tendency toward separation by considering an apparent exception, for this exception will serve to introduce what follows. The years between 1865 and 1890 saw in England and America the appearance and the remarkably rapid success of Neo-Hegelian idealism. During these years the traditional English philosophy, which had held the field for a century and a half, went down almost without a struggle, and philosophical writing and teaching were pretty completely revolutionized, so far as this writing and teaching emanated from those professionally interested in philosophy. The close of the century found this Anglicized Hegelianism everywhere in the ascendant in England and America. Germany stood aloof, with a smile for the 'good' German philosophers who had died and gone to Oxford. Now idealism has been in its intention first and always a metaphysics; whatever it stood for in ethics and logic was always understood to be preliminary to the establishment of metaphysical principles, or derivative from the consistent development of a certain metaphysical position. A large proportion of the writing of idealists, especially in the first generation, was given up to the criticism of positivism in Comte and J. S. Mill, of the Unknowable of Herbert Spencer, of ethical Utilitarianism, and of the sensationalist theory of knowledge which was the common root of all these. Both in criticism and construction idealism felt itself to be in possession of a single principle which enabled it to evaluate the conclusions of the special sciences, to view them all as contributing to a total understanding of man and nature.

Consequently the correlation of the separate results and points of view of scientific investigation was an integral part of the claim of idealism to be an all-inclusive philosophical system. It had inherited from the post-Kantian German philosophy a device for making precisely this correlation, the notion of a plan or map of the human intellect which, by displaying the categories of knowledge singly and in relation, should show at the source, so to speak, all the possible points of view from which the project of knowing could be carried forward. From Hegel it had in-

herited a special method for making clear the correlations of these points of view, the method of dialectic by which the inherent organization of the intellect made itself manifest in an ascending series of more and more self-consistent categories. In such a series the points of view of the special sciences would find their places as severally inadequate but collectively beneficent abstractions, instrumental in the business of bringing to light the richness and concreteness of the total system of reality. The principle was Hegel's reconstructed theory of contradiction as the instrument of an all-inclusive system. For these reasons idealism justly regarded itself as standing outside the general tendency toward discreteness and incoördination which marked the period that gave birth to it.

Still it may be doubted whether idealism was in its accomplished results as much of an exception to the general tendency as its program seems to indicate. Idealism has, indeed, a single point of view which it has worked out with a high degree of consistency. The doubt remains, however, whether its point of view was capable of application in such a way as to yield a really effective organization of scientific points of view. The fact is that the notion of dialectic has never had among English philosophers the vitality and seriousness which it had in the estimation of Hegel himself. The English idealists have been captivated rather by the ideal of dialectic than by its detailed elaboration; it represents a position which ought to hold rather than one which they have claimed to exhibit in detail. They have not only admitted but insisted that the dialectical transitions in Hegel's logic were often wire-drawn and artificial, and the improvements which they introduced were largely by way of making clearer the principles of the method. The detailed transitions were thus overlooked, since a particular failure in detail is rightly held not to invalidate the principle. But it is one thing to admit failure in particular cases and quite another to neglect the dialectical transitions altogether. The detailed transitions are, in fact, the heart and soul of the method. Some time or other they must be made out and no amount of clarity in the principle will do duty in place of a demonstration of its

applicability. The dialectic was not strained or artificial for Hegel precisely because of his abiding faith in the method as a way of showing the logical structure of experience in detail; for him the principle was in the deepest sense operative. In its English and American development the correlations made out by the consistency logic were more formal than real. To do justice to the richness of reality a multitude of points of view were held to be necessary, and all points of view must be contributory to this end, but the highest ambition of Hegel's logic,—to show how all fruitful points of view are evolved in the course of the mind's coming to itself,—was hardly imitated.[1] The chill of scientific empiricism had struck to the heart of this romantic project. In effect, the idealist logic largely accomplished something not in principle unlike that which positivism itself undertook, though with quite a different bias. It showed that no single category could be regarded as the one key to unlock all doors, and thus it became one means to an effective criticism of naïve naturalism.[2] But this in itself falls far short of what idealism must do to maintain its position affirmatively, and too often the result was discredited in advance by an obvious willingness to become the means of moral and religious edification.

A separation of scientific points of view which was counte-

[1] The work which forms the clearest exception to this statement is Professor Bosanquet's *Logic*, which will stand, I believe, as the sincerest attempt by any Neo-Hegelian to elaborate idealist principles affirmatively. That this feature of the book was so little discussed appears to show that neither the critics nor the idealists realized that the book was the most thorough attempt to do what idealism was in duty bound to undertake.

[2] The manner in which program and fulfillment were confused may be illustrated by a couple of sentences from that admirable prospectus to idealism, Professor Andrew Seth Pringle Pattison's "Philosophy as Criticism of Categories" (1883), reprinted in *The Philosophical Radicals*. "Philosophy, as theory of knowledge, can alone arbitrate between the combatants [the special sciences], by showing the relation of the different points of view to one another, and allowing to each a sphere of relative justification" (p. 335). "From this standpoint [of physical science] every moral action is simply an event, and, as an event, forms a term in a series of mechanical transformations . . . *All that we contend is that the scientific explanation does not exhaust their significance;* so far as they are actions, that is, related to the moral consciousness, it gives no account of them at all" (p. 321). The italics are mine. It is clear that the 'all' for which the author contends in the second quotation is a very modest part of the program sketched in the first.

nanced or even accentuated by idealism is to be found in the relations which were established between it and psychology. Idealism was perhaps on its strongest ground when it appeared as the critic of the traditional English sensationalism and of its various applications in ethics and political theory. At least so far as philosophy itself was concerned, it succeeded in a surprisingly short time in driving its well-established opponent from the field. Now this sensationalism, with the association of ideas as its principle, which in its traditional form had covered the fields both of psychology and philosophy, persisted in psychology long after idealism had established itself as philosophy in its stead. It is hardly open to doubt that structural psychology was, in fact, the residuary legatee of English Empiricism, in spite of the undoubted changes which it introduced. It did, indeed, insist, as Empiricism had not, upon the correlation of mental states with physiological processes, and more particularly it claimed to have transcended the older psychology in conceiving its mental elements as processes rather than as static bits of mind-stuff. The structural psychologist even admitted that his sensations were, in a sense, artifacts, defined, if not created, for purposes of a given scientific description, an admission which certainly would not have been made by James Mill, to say nothing of Berkeley and Hume.[1] Nevertheless, these changes were matters of detail as compared with the more fundamental identities which persisted. Structural psychology still regarded the mind as a complex of mental elements, mainly sensational, or sensational and affective, and its problem was still to analyze complexes into their constituent elements. Its method, like that of Locke or Berkeley, was ultimately introspection, the turning of the mind's eye inward upon itself, and the refinements of laboratory method operated rather as a control upon introspection than as an alteration of it in principle. In short, the structural psychologist still maintained his right to treat mind for a psychological purpose in much the sort of way that the idealist was showing to be fruitless when used for a logical or ethical purpose.

[1] *Cf.* Professor Titchener's "The Postulates of a Structural Psychology," Philosophical Review, Vol. VII, p. 449.

In this claim the idealist's criticism of categories was unable to shake the structural psychologist; the criticism took little or no hold upon him, probably because it did not suggest to him any constructive explanation which he could put in the place of the ones to be discarded. The idealist's argument therefore became in effect that, whatever may serve the psychologist's purpose, structural analysis does not in fact serve that of logic or ethics, and the logician or moralist has as much right to his purposes and categories as the psychologist has to his. Psychology was virtually given permission to go where it liked, so long as it kept out of the private preserves of logic and ethics; in fact, the analysis of mind into its elements came to be recognized as the special province of psychology, a beneficent procedure and an inevitable part of the total problem of rationalizing nature, but the root of all evil if it got confused with logic or ethics.[1] The structural psychologist, not to be outdone in generosity, would on occasion admit that the analysis of mental structures could never be an analysis of meanings, since his mental elements, as mere events, had neither meaning nor reference.[2] Thus in return for his undertaking not to bother the psychologist, the logician got an equal liberty to enjoy his own point of view undisturbed. Psychology and logic agreed to disagree. They became distinct investigations, having largely a common subject matter, indeed, since both were concerned with mind, but having points of view so different that they could scarcely be said to come into contact with one another. So far

[1] Thus in the essay by Professor Seth Pringle-Pattison referred to above, the author's criticism of Kant, and by implication of English philosophy, is that it attempted to construct a theory of knowledge from the point of view of psychology (p. 307). On the necessity of each point of view in its own place, *cf.* the following: "The empirical psychologist analyses the most complex states into their elements, and builds up ethical and religious sentiment out of desires and aversions, and all by a process essentially mechanical, without any reference to the unity of the conscious life for which these states exist. Just as the psychologist has neither occasion nor right to consider any special power which he calls the Ego, so the physiologist in the case of the organism. . . . The abstraction is not only defensible but necessary" (p. 326). It is only fair to say that ten years later, in his address on "The 'New' Psychology and Automatism" (1892), Professor Pringle-Pattison held that Professor Münsterberg had abused his liberty, even for purposes of psychology.

[2] Titchener, *loc. cit.*

from a correlation of scientific points of view being effected, therefore, logic and structural psychology stood in sharper contrast than had ever been the case with any two philosophical disciplines.

The situation thus produced was artificial and unwholesome both for psychology and for philosophy. In no real sense did it represent a division of labor, the fruitful coöperation of two sciences for their mutual benefit. Neither the philosopher nor the psychologist seriously expected to gain anything from the progress of the other; it was at bottom an arrangement for preserving appearances. Moreover, the situation was anomalous in the light of the experience of other sciences. Nobody expects that two sciences having nearly the same subject matter will exist side by side without influencing each other constantly; to take a case at random, nobody is surprised when an investigation of heredity in potato-bugs proves to be enlightening for anthropology. And finally the history of philosophy has constantly illustrated the fruitfulness for philosophy of the influence of science in general and of psychology in particular. New constructive points of view in philosophy have largely been the result of new methods and new subjects of scientific investigation; the debt of idealism itself to the advance of the historical and social sciences is a sufficient illustration. In not a few cases the men who created new philosophies were almost if not quite as eminent in the sciences. If, therefore, philosophy shows a tendency toward re-establishing its connections with science, it is merely running true to its type. Such a tendency to reopen avenues of communication is the most promising feature of the philosophical work of the past twenty-five years. In two cases this intercommunication has been especially important, in the increased influence of biology upon psychology and in the influence of psychology upon philosophy.

Looking back upon structural psychology from the vantage ground of the present, it is easy to see that the alliance between psychology and physiology had in fact affected the psychologist's presuppositions far less than he was inclined to suppose. This may be illustrated by a further reference to Professor

Titchener's article on "The Postulates of a Structural Psychology" mentioned above. Certainly there was never any doubt in Professor Titchener's mind that his psychology stood in the closest relationship to physiology in particular and to biology in general. And yet when we examine these biological relationships as Professor Titchener states them, we see that they are quite frankly analogical and nothing more. Structural psychology in its analysis of the mind is the analogue of morphology; functional psychology is the analogue of physiology; and child psychology is the analogue of ontogeny. Structural psychology is defended as the logical first step in the study of mind, since functions can be studied successfully only after the morphology of the (in this case, mental) tissues is known. The functions in question, however, are assumed to be the functions of the mental structures, and though the author is not unaware that mental operations might be regarded as functions of the organism as a whole, he does not appear to see that this view of the matter is quite incompatible with his analogy. For if that is taken to be the case, the structures to be studied are clearly the nervous and other anatomical parts concerned, and there is no occasion for the assumption of mental structures at all. The analogy must imply that we have two subject matters to which identical, or analogous, methods can be applied, the physical organism on the one hand and the mind on the other. The structural and the functional psychologists respectively do for the mind what the anatomist and the physiologist do for the body.

It is clear that, despite the working alliance which he has made with the physiologist, the psychologist has not in principle gone beyond the far older view of the mind and the body as distinct though correlated substances. It is only another phase of the same assumption when the structural psychologist makes introspection his basic method; mind is observed and described, *mutatis mutandis*, as body is. Historically this point of view is that sketched by Descartes and elaborated by the English Empiricists, and though the latter had neglected the correlation with bodily processes, so long as the correlation is conceived as merely parallel or analogical, the omission can hardly be charged

against them as a serious logical fault. It becomes a fault only in proportion as the psychophysical unity of the organism is taken seriously. The assumption in question, is, of course, precisely that against which the idealist most frequently directed his criticism, without forcing the psychologist to abandon it. What the criticism of categories failed to accomplish, however, has largely been brought about by the dove-tailing of advancing biological and psychological investigation. The parallel treatment of mind and body has given place to an effort to show the part played by mental operations in the total functioning of the organism, which in principle implies a sounder position both philosophically and psychologically. In philosophy it implies the effectiveness of the mind in functioning, not its mere parallelism with bodily processes, and consequently it implies the revision of the whole untenable theory of two substances. In psychology it involves the immeasurable advance of making the examination of mind and body part of an integral investigation into the behavior of the whole organism.

The changes thus wrought in psychology have been part of larger changes which have extended equally to philosophy. The most tangible result is to be seen in ethics, for the newer psychology has given us a more tenable theory of motives and conduct than we ever had before. Here as elsewhere the final results have certainly not been stated, but it is not too much to say that we already have a much clearer idea of the processes involved in the formation of the moral sentiments and of character than we had twenty-five years ago. The explanation of character, however, has extended its influence far beyond the limits that would once have been set for it, for it has been undertaken from a point of view which necessarily brought the whole problem of knowledge within its scope. Knowledge and the processes by which knowledge comes into being have to be assigned their places as organic and social phenomena. It is this project which appears as the most vital problem of present-day philosophy. The results have not indeed passed beyond the controversial stage, but it is quite safe to say that the controversy will not be settled by the appeal to difference of points

of view. The newer issues cannot be turned over to psychology, leaving philosophy intact as it was a generation ago; it is not too much to say that no one any longer wishes this to be done.

An effective interaction of science with science has come about and it may be hoped that in time a clearer correlation of scientific points of view will be reached. In this way the idealist's desire may be realized, though by means and with results that he did not contemplate. Rather a surprising number of his criticisms have been made good by the appearance of better explanations to take the place of those which the idealist wished to discard. His ancient enemy, the associational psychology, is gone in all its forms and with it will go its corollaries in ethics, political theory, and economics. The dichotomizing of nature into mind and body, which was another chief object of the idealist's criticism, we may expect to see disappear, or be wholly redefined, with the use of methods of explanation to which the distinction in its older form is irrelevant. And when this occurs, it may be expected that philosophy will find its way clear to rationalize what after all was the idealist's cardinal principle, the effectiveness of mind in nature. If idealism as a system is destined to go the way of all systems, the idealist can scarcely complain that the logic of events has treated him more hardly than is the common lot.

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ETHICS IN THE LAST TWENTY-FIVE YEARS.

NO such striking contributions to ethical theory in the established lines have appeared during the last twenty-five years as marked the preceding quarter century. Sidgwick's analysis of the morality of common sense, union of utilitarian criterion with intuitionist grounding of obligation, and insistence upon the uniqueness of the moral (1874), Green's penetrating examination of the presuppositions of the moral consciousness (1883), Martineau's inpressive presentation of certain high and fine factors in conscience (1885), Paulsen's catholic restatement of eudemonism (1889) had approached the subject on the level of the best thought of their day, but for the most part had employed familiar categories. Spencer's *Principles of Ethics* in its completed form falls with the period of our present survey, but the *Data of Ethics* had appeared in 1879 and *Justice* in 1891, and Wundt had in 1886 made use of custom and religion in explaining facts of the moral life. On the other hand, within the period in question the genetic study of morality has taken advantage both of the wealth of new material offered by anthropology and of the methods of interpretation suggested by social psychology. In common with law, religion, and art ethics has found the comparative method indefinitely broadening in its outlook, and although the full bearing of the results in this field upon the criteria of conduct is far from having been fully adjudicated it is safe to say that a different perspective and a different relative emphasis is certain to prevail. The genetic method with its partially discerned implications for ethical theory has been one outstanding characteristic of the period. Second, and not yet so fully represented in the technical literature, is a return of interest to the economic, political, and social problems which marked the ethics of Aristotle, Adam Smith, German idealism, and the Utilitarians, but had in this country been rather timidly left to publicists or economists. This interest, already rein-

forced by the Great War, is likely to become a leading trend as a result of the reconstructions that may come with peace. In a brief survey of the leading trends of the past quarter-century I shall but notice in passing the development of ethical theory in its stricter sense and deal chiefly with the genetic study of morality, and the field where we see ethical principles writ large. For in part the theoretical inquiries develop lines of thought already laid down in the preceding period, in part they deal with problems growing out of the evolutionary point of view and so can best be noted in connection with this.

I.

The question most discussed in ethical theory has been set by biological conceptions. Shall the standards of morality be taken from the world of nature? The question at once recalls analogous efforts to find a moral standard in some external source—the eternal essences of Plato, the will of God, the decree of the State. These latter sources of authority appealed to men in times when the individual had not come to his own, but were left high and dry by the subjective and individualizing eighteenth century. That a new claim to allegiance should be set by a new autocrat is not surprising when we consider the tremendous significance of natural science in our intellectual life, and the far-reaching importance for our well-being of the newly discovered laws of physics, chemistry, biology, and medicine. At the least it would seem that the utilitarian, while adhering to his standard of pleasure, must henceforth proceed to secure or produce a maximum of pleasure not as of old by empirical methods, but by calculating from the laws of life and health. At the most it might seem that since man is so insignificant an atom in the great process of evolution it behooves him to see by what laws he has attained whatever status and goods he now has, and therein find guidance for the future. Such was Spencer's platform in the *Justice* which appeared just twenty-five years ago. Between the two conflicting attitudes toward justice, "to each according to his deserts," and "to each according to his needs," a decisive judgment is given by natural law, according

to Spencer, for the former—although of course he would have needs met by private beneficence.

Less directly and unambiguously Nietzsche had made use of Darwinism as one of the many motives in his challenging of all existing standards. His fundamental demand for an overturning and revaluation of all values rests indeed on the sociological distinction between morals of masters and morals of slaves, but his thoughts of the Will to Power and the Superman seem to get definition and imagery, at least in part, from the cosmic process.

There is no doubt that 'evolution' has found wide acceptance as a source for moral standards, and further that the particular reading of evolution which finds in it the precept of ruthless self-assertion as the method of progress is by many considered the only correct interpretation. Criticism of both these positions has been a prominent feature of ethical discussion. Sidgwick's doctrine of the uniqueness of the ethical valuation was developed by Moore. If 'good' means just 'good' and nothing else, then we cannot substitute survival value for moral value. Moral valuation will sit in judgment upon the cosmos; it will not abdicate its own standards. Idealists have insisted upon the significance of the self as a factor not found in nature aside from man, though there has been little disposition to adopt Green's theory of the reproduction of an eternal consciousness. But the most brilliant attack upon the ethics of naturalism was that by Huxley in his Romanes Lecture, who pointed out in striking epigrams the difference between a cosmic process which seems to reck little of any values and an ethical process controlled by ends set up by man.

As one reviews the discussion he is likely to reflect that as usual each side has a half truth. Moral standards are not identical with survival values,

> "'Tis man's perdition to be safe,
> When for the truth he ought to die."

None the less a standard that called for universal suicide would be paradoxical. To abolish all life would be to abolish all valuation and all values. Even the advocates of war as a nurse of the virtues do not claim that it should be carried to the stage

of complete extermination—of themselves. The philosophy on which Lot's daughters acted is not violently disapproved by common sense, and it would not be surprising if the slaughter of men in the present war should stimulate reflection upon the rigidity of sexual codes. For the morality of common sense ordinarily assumes life as a value. As against death the deeper voice is for more life and fuller. Only extreme and hopeless suffering, or loss of reason, or fear of shame, or some fine, high quality outweighs even physical continuance. This is not to deny that the moral consciousness often sets other values above physical existence. Nor can it be ignored that immortality, as once conceived, has waned in power over men's decisions. It is only to suggest that in finding a supreme value we need to beware of resorting to abstract good, and formal right. Thoughts without contents are empty.

Turning from the ethics of evolution to the evolution of ethics we come to a field that superficially considered promised nothing startling or unsettling. For we had long been accustomed to the fact that our Celtic or Teutonic or Latin ancestors cherished the code of blood revenge, or accepted wergild, that they held slaves and granted few rights to women, that they employed ordeals and torture, and in the words of Pollock spent their nights in cattle stealing and their days in manslaughter. We had accepted the polygamy of the patriarchs as marking an earlier stage not authoritative for the present. We had looked upon the Law as a schoolmaster. Customs of savage tribes had been reported, and John Locke had argued therefrom. Why then should interest turn in so marked a degree toward this field?

The answer is not to be found wholly in the more abundant information we possess with regard to morals and customs, although no doubt this is a contributing factor. The mass of material classified by Westermarck and Sumner, or in Spencer's Descriptive Sociology, is indeed calculated to promote reflection. But at an earlier day it might have been assimilated to the older conceptions. We might have considered the good traits discovered as so much additional evidence for the moral sense or conscience, and the abominable practices as additional evidence

of native egoism. If we wished to go back still further we might attribute the moral sense to a Creator, the egoistic nature to a Fall or to bad institutions. Or if we had taken Hume and Adam Smith, Kant and Utilitarianism to heart we might have sought to ground moral sense in sympathy, conscience in practical reason, and altruism in association—and been satisfied therewith. Yet this has not been the case. Partly because of the general influence of Darwin in replacing mere description by causal analysis, partly by a far more intelligent account of what savage conduct means to the savage, partly by a better psychology we have abandoned largely the old categories as inept. Although we are still largely in the descriptive stage so far as our study of the history of morality is concerned we have at least gained two working conceptions which change our whole perspective. These are:

First, group life.

Second, the moral as an intimate, inseparable part of the whole process of preserving, controlling, and valuing—hence not to be understood in isolation as moral sense, or as practical reason, or under any similar category. These working conceptions have made possible more adequate views of custom, of the origins of right and duty, of the psychology of the self. They enter into the question in which is focused the relation between moral origins and moral standards: Is it true, as Sumner claims, that "the mores can make anything right"? This may be compared with the biological claim: Fitness to survive or promote survival makes anything right.

Group life is a radical conception. It reverses much in the former way of considering men's relations. It makes obsolete many of the older problems. It makes imperative a different psychology. It does not in itself answer many ethical questions, but it shows where to look. Finding sub-human prototypes in various species of colony or gregarious habit it requires us to drop space limits as the all important definition for a moral individual and suggests that we consider him as he actually lives, his interests, his range of imagination and feeling. It seeks the actual content when the person talks in terms of 'we' and

'our.' Is 'we' the plural of 'I,' or is 'I' the singular of 'we'? Perhaps one is the case when we mean 'you and I.' But perhaps the other is the case when we do no adding but identify ourselves with a larger unit which is the main conception. Such is the attitude of the business man toward the Firm; such the attitude of the child in many of the family situations; such is the member of the tribe or clan, of the 'we-group' as over against the 'others-group.' This was a point of view that never became sufficiently clear to dominate earlier thought. For want of it there were disputes as to how an individual could become generalized in his sympathy or could recognize the claims of others. It was sometimes held that in reason he might become universal and thus autonomous, but inasmuch as man is not a sheer rational essence the full problem of duty was not met. Or again it was held that by sympathy or association he might generalize his motives, but with sympathy conceived as a contagion or imitation of emotions there was still no explanation of a genuine social interest or a genuine autonomy. The conception of group life in which the whole determines the parts as truly as parts determine the whole gave concrete imagery to the conceptions that had been present indeed to Plato and Aristotle and had hovered as "mere idea" before Kant, but had not entered into actual psychology or ethics in a determining fashion.

This conception of group life has centered attention more fruitfully upon custom. Custom is ordinarily conceived chiefly as usage or habit. The temporal aspect of repetition is prominent. But it needs little reflection to discover that it is only the custom of *our group* that has any binding force upon us. Something may have been done from time immemorial; unless it has been so done in our group, our country, our family, our class, it is merely a curiosity; it will not be recognized by judges as a source of law, nor by men as a reason for conduct. The custom that binds is a *folk* way, it is of the ethos of a group. To become not merely folkways but mores there must be a judgment of value. The things not to be done will be taboo. There are then besides supernatural sanctions, we have learned

from Sumner especially, embodied in the mores the repetition or time factor, the group factor, and the welfare factor. But as Sumner goes on with his heaping up of instances of mores we can but feel that the greatest of the above three is the group.

The conception of the group has compelled a restatement of the conception of the individual. This was initiated to be sure from several more or less independent lines of thought. James's brilliant chapter on the self, just preceding our period, was apparently suggested by psychological rather than sociological interests. But in the wealth of material from European and American writers which has directed our attention to the social self, or to the racial self, or to the dialectic of personal growth, or to the processes of imitation and suggestion, or to the stock of instincts, or to the philosophy of loyalty, we find sociological interests and concepts playing a strong and often a dominating rôle. The individual has been declared to be a social outcome rather than a social unit. In fact we might draw a parallel between the change that has been taking place recently in the conception of the self and the change effected by Kant. For in place of the soul as simple substance affirmed by rationalism and discredited by Hume, Kant set the conception of an active agency which comes into being as it organizes its experience. It is a synthetic unity. The self of social psychology is similarly born in the process of defining relation to other selves. Only the peculiar stimulus that comes from persons evokes the peculiar responses that enter as integrant factors into growing personality.

The ethical implications of this view of the self have partially been exploited. Baldwin's *Social and Ethical Interpretations*, Royce's *Philosophy of Loyalty*, Westermarck's *Origin and Development of the Moral Ideas*, Sumner's *Folkways* are enough to show how important a reconstruction has been going on. Older puzzles as to obligation, as to egoism and altruism, as to innate and acquired principles, as to intuitions and moral sense, can no longer be stated—to say nothing of being solved—by the older formulas. "Reason" is still relied upon by some as a category exempt from the need of reconstruction in the light of social psychology, but as I have tried to show elsewhere[1] this is because

[1] In the Volume *Creative Intelligence*, by John Dewey and others.

reason as exalted by the rationalist is not the reason which actually functions in the moral consciousness. The reason which law and common sense have in mind in the demand for reasonable conduct is rather a social attitude than a faculty for eternal truths, and as such depends in its significance upon the group and its standards. To the aristocrat, as Aristotle long ago pointed out, inequality is reasonable; to the democrat equality.

These considerations are already in the sphere of Sumner's declaration: "The mores can make anything right." Sumner's chief emphasis was no doubt psychological rather than metaphysical. He wished to show that the mores give sanction and currency to "things which seem to us contrary to simple and self-evident rules of right; that is they are contrary to views now inculcated in us by our own mores as axiomatic and beyond the need of proof." This as psychological statement would not disquiet a believer in eternal and immutable morality. It is simple enough to make a distinction between what is right and what seems right to a particular period or group. And the absolutist may even admit that his own views are defective, just as he may hold that his color vision is limited, and yet argue on logical or metaphysical grounds that this does not affect the intrinsic character of right, any more than his defective vision affects the laws of light. But Sumner's challenge goes deeper: He not merely foresees as probable a further change in the mores by which democracy and pair marriage, which have been brought about as favored by present economic conditions, will yield to other ideals; he insists that "the standards of good and right are in the mores." "All ethics grow out of the mores and are a part of them. That is why the ethics never can be antecedent to the mores, and cannot be in a causal or productive relation to them." "Shocking as it must be to any group to be told that there is no rational ground for any of them to convert another group to its mores . . . yet this must be said for it is true."

Here then is a radical position. It is not just the familiar position of empirical utilitarianism which held that right is what conduces to the greatest happiness of the greatest number and

so must be learned by observation and experience, nor is it to base ethical judgments on emotion or the moral sense. The mores have regard to utility, and they incorporate likes and antipathies, but they are more complex in composition and sanction than the standards of the older theories. Yet to regard the mores as not merely accounting for past standards but as the only source of future standards is, if possible, more definitely in contradiction with rationalism than were utilitarianism and the moral sense theory.

This position has been most directly challenged by rationalism and by idealism; it is however implicitly antagonized by certain realistic theories. The rationalistic criticism is illustrated by Rashdall's *Is Conscience an Emotion*. One line of the idealistic criticism is connected with a general method that deserves fuller mention, namely the study of values.

The conception of value has been brought into prominence primarily from metaphysical interests on the one hand and economic studies on the other. In its first source it marks in part the same opposition to naturalism that has been already noted in connection with biological ethics. Nature knows no values. Natural science exhibits only a world of description. But besides this there is a world of appreciation. In part the metaphysical source is not merely anti-naturalistic but anti-intellectualistic. The Ritschlian theology has sought to base itself on judgments of value. In economics wide reaching social claims were based on conflicting theories of value. Is the "true" value of goods to be measured by labor or by competitive demand? The great issue of the justice or injustice of our present economic and social order was joined on this alternative, and the first step was evidently an investigation of value in general. It would be only a novice in human nature that would expect men's decision upon the respective justice of individualism and socialism to be settled by a psychological analysis of the process of valuation. None the less the inquiry thus begun has joined forces with the other interests in the problem of values and a considerable literature has been evoked. Much of this has dealt with ethics only incidentally, but it is instructive to see

how the technique of this method can be made to serve equally well such opposite theories as those of Ehrenfels and Münsterberg, the one arguing that there are no absolute values, the other laying especial stress on the contrast between eternal values and values as found in the changing mores, or in individual valuations.

Variations in these, claims the idealist, are natural and inevitable but do not affect ethical values which, like logical, aesthetic, and metaphysical values, depend on no changing or personal conditions but solely on the will to have identity in experience and thus a self-dependent world. The specific ethical value lies in identity between intention and fulfilment. Development has value not because the end is in itself better than the starting point,—for we have no right to say that it is—but because of the transition. The deed, not the result of the achievement, is valuable. This demand for a distinct world of over-individual values derives not a little of its force from the interpretation which is placed upon the individual and personal: "Every individual will is determined by pleasure and displeasure; it serves personal [private] desires and can therefore never be general and absolute." Critics of idealism have long urged that such a theory of determination by pleasure is false psychologically, and creates an abyss for the sake of bridging it by some special faculty or act. And despite the claim that this idealism differs from earlier types in beginning with experience, and not seeking a sphere beyond experience, it is still difficult to see how it can escape the consequence of excluding from the moral all content, leaving only the formal factor of identity—the consequence of securing the over-personal at the expense of the human.

Croce likewise finds no gain for ethics in genetic studies; the historical is a hindrance. Yet in spite of his Kantianism he really incorporates much concrete material, and his differentiation between the economic and the ethical valuation is a suggestive one. Utilitarianism, he holds, is really good economics though not ethics. No doubt the same motives which have found expressions in all the idealisms must somehow find recog-

nition in an ethical theory that remains, but it seems unlikely that the recognition will take the form of such a sharp separation as is indicated by Münsterberg and Croce.

The realistic treatment of values is opposed to the subjectivity implied in the emotional theory; it is likewise implicitly opposed to a theory which has no standards but the mores. For in holding that goodness is a quality of things just as square is we seem to predicate a value independent of any conscious attitude toward it. This is reenforced by the doctrine that right depends on consequences, for consequences are what they are. What is right is therefore independent of men's opinions; its rightness cannot vary according as the person judging varies in attitude; the same act cannot be at once wrong to you and right to me because it calls out differing emotions. Perry does not agree with the English realists in their contention that values are independent of conscious attitudes—interests and purposes—but he believes that there is a maximum value which transcends the relativity of particular interests.

The second radical conception that has been gradually emerging in the study of moral origins is that of the moral as an intimate inseparable part of the whole process of living. This was not present in the literature at the beginning of this period as a determining point of view. Marriage customs, burial customs, slavery customs, property customs were gathered from peoples at all stages of culture, and assembled promiscuously. Even the great collection of Westermarck is largely made on this method. The maxim of the economic interpretation of history was indeed well known, but it was usually applied too simply to be fruitful in interpreting the complex facts of custom, to say nothing of morals. An early essay by Grosse on Forms of the Family as related to types of industry was a suggestive study. It was, however, an article by Dewey on Interpretation of Savage Mind that showed decisively the inadequacy of the current method of treatment. He pointed out how absurd it is to make sweeping abstract statements about, for example, the laziness of the savage. Such statements have usually been made from the point of view of the European who is accustomed to a

type of continuous industry that is quite impossible for the savage in his environment, and with his way of getting a living. Dewey calls attention to the abundant evidence that the savage can give himself continuously to the strain of the chase or the war path when need arises, and that this type of activity is the very kind that in his conditions is important. Similarly his control of sex relations or of the food supply may not be ours, but yet be precisely adapted to secure certain valuable ends. These ends may or may not be as desirable as some of the needs of civilized man, but the important thing is that the savage is controlling his life and is controlling it for certain ends which he thinks desirable. Unless we view his methods in their just relation to his whole business of living, his acts have no real significance when put beside those of people of other cultures.

Professor Dewey draws his illustrations largely from the classic studies of Spencer and Gillen, which may be said to have marked an epoch by their sympathetic and detailed descriptions. Many other peoples have since then been studied in similar fashion, though in few cases has the study been pursued into such detail. But the difficult task of utilizing the source material for an evolution of morality is as yet in its infancy. In the first edition of his admirable *Morals in Evolution* Hobhouse made almost no attempt at any correlation between the various lines of development. He traced law and justice, marriage and the position of woman, relations between communities, class relations, and the facts as to property and poverty, each by itself. We had a highly valuable survey of the successive stages, but little or no suggestion as to forces at work. In his recent revision an important step toward correlation has been taken. On the basis of a study made by him jointly with Wheeler and Ginsberg, he now relates the various types of legal marriage, or other institutions, to the method of getting a living. Such a treatment cannot of course be adequate if pursued purely by a statistical method. It must be supplemented and checked by a study of the actual history of peoples who have passed through various stages in their morality. We have considerable data for such study in the histories of the Israelites, Greeks, Romans, and

modern European peoples. We have also highly significant changes in mores taking place from year to year embodied in our law, our literature, our standards of living, and our methods of philanthropy, if we have eyes to see them, but the task of organizing and interpreting all these lines is an enormous one.

When such an interpretation of the moral is more adequately worked out, the contrast between origin and validity, which has been more or less in evidence through the period, will no longer be as simple as it appeared at first. Stated abstractly it is clear enough that the origin of an institution does not decide its validity. An enlightened conscience will not command me to knock my parent on the head because that was an earlier method of filial respect, nor will it on the contrary be decisive against communism that this once was prevalent but has since been abandoned. If the history of morals were simply a history of customs that have proved useful for survival or for 'progress' as measured by our present standing place, it would have even then a certain significance as the testing of standards by their consequences. But the customs, taboos, and ideals of mankind are more than accidental ways that proved successful. As men advance in intelligence their morals have an increasing element of controlling the situation and not simply of adaptation to it. They represent the development of new values and new standards for valuing. They show the self gradually gaining definition, power, and worth, as it controls nature and relates itself through language and art, through institutions and religion, to other persons. To enter into this process cannot fail to give some data for answering the present questions: What is my right relation to my fellows? What values of personality are greatest? An ideal which cuts itself off from all such sources will have to resort for its values to such meager conceptions as identity and consistency.

II.

The developments noticed thus far have come chiefly as the result of the scientific conception of evolution. If, however, we ask what has affected most intensely the ethical thought of the

period we must find an answer, not in science, but in the economic, political, and family life.

The changing conditions of business and industry, the shift to urban life, the consequent changes in the family, the demands for new legislation, the controversies over judicial interpretations, the search for more effective dealing with poverty, vice, and crime, last of all the issues of nationalism and internationalism, war and peace,—these and others of like sort have stirred men from easy reflection. Older conceptions of justice have proved inadequate. A new term 'social justice' has been framed to express the consciousness that the present distribution of privileges and goods—in education, in prosperity—is in need of more or less fundamental revision. The great progress in industry and business organization has at once accentuated the power and wealth of the leaders, and increased the class consciousness of the workers. The growth of social interaction and interdependence has at once strengthened the need and possibility of organized control by the state and increased the eagerness of the individual to live his own life. Democracy and socialism have confronted aristocracy and the cult of the superman. Police power has fought a gradually winning battle against private rights. The worth of the universal aspect of man incorporated in the state has been magnified by the rise of national unity and imperial power, and recognized by one philosophical school, only to be challenged as reactionary by the leaders of a democratic liberalism, and recently subjected to still severer scrutiny in view of the war. Social ethics has been faced by new types of individualism. Feminism is suggesting radical changes in codes for women.

These conflicting tides are reflected not so much in the schools as in periodicals, fiction, political platforms, court decisions. No Plato has yet appeared to perform the double task of artistic interpretation and conceptual analysis for our age divided. But it is easy to see that now as in Plato's day the deepest controversies of the time are focused in the conception of justice, while the aspirations or policies or vaguely defined longings find expression also in the watchwords of Liberty, Democracy, Self

Development, Progress, and Efficiency—even as most of these terms played their part in the day of the *Republic*.

The conceptions of justice which were current during the nineteenth century reflected the long struggle for liberty and equality. Its fundamental note was individual rights. Due process of law was the agency for their defense. Private property was the fundamental good that needed to be protected by constitutions and courts. The idea was that in the world as planned by God or conducted by Nature every man could secure a fair share of the goods of life if he were not handicapped by privilege or oppressed by governmental power. Now that a new economic power has risen to take the place of the old political agency, and now that competition once relied upon to distribute widely the gains of progress proves a convenient instrument for securing and maintaining monopoly, the old safeguards have crumbled like the older types of fortifications before the modern forty-two centimeter guns. Yet if this were all justice might simply call for new defenses of private interests, for such legislation as the Sherman Act, and such control of monopolies as the Inter-state Commerce Commission. Justice might still mean the guarantee of rights. But there is a change going on which calls for more fundamental reconstruction. The closer interweaving of all our interests, the deepening interdependence of all our lives, the growing power of public opinion and public sentiment, the gradually forming social consciousness, all these lead us to seek somewhat blindly and uncertainly as yet a 'social' justice. Like the old justice, it must protect all members of society—even the least—from violence and fraud, but it seeks to distribute more fairly the burdens and gains; it would keep open the way of opportunity. But above all perhaps is its conviction that society by taking thought can move on to a new level; that no longer living from hand to mouth, no longer groping, or blundering by trial and error, men may through the new science and the new spirit achieve what has been impractical before. Like Plato's ideal this justice must consider individuals not merely as individuals but as members of a social whole which cannot tolerate defect or disharmony. Yet it

must incorporate more successfully than Plato's justice the full personality and development of the individual. In other words it must if possible combine the weal of all with the fuller life of each. It must combine justice with democracy. In attempting this reconstruction idealism as represented by Bosanquet has employed Greek and Hegelian conceptions of the state which Hobhouse in his *Democracy and Reaction* attacked as lending themselves to reaction. Royce has sought in Loyalty a way to a better, more harmonious community. Fite has restated individualism in terms of the rights of intelligence. Nietzsche's disciples have pressed the claims of the strong and efficient. Socialists have seen the struggle of the non-privileged against the privileged as the heart of justice. Dewey has pointed out the danger of ideals kept separate from experience, and would measure the worth of a form of social life by the extent in which the interests of a group are shared by all its members, and the fullness and freedom with which it interacts with other groups. These criteria point to democracy. Democracy and education are reciprocally necessary, each to the other. Isolation is bad for the 'privileged' as well as for the non-privileged.

Democracy in Athens had to confront in a limited degree problems of foreign conquest and empire and of domestic class divisions and slavery. In our past quarter century, democracy has had problems of somewhat similar type but of extraordinary magnitude. In Germany social democracy has been confronted with the forces inherent in a rapidly growing industrial state, but above all with the military organization deemed necessary for the maintenance and progress of the imperial power surrounded by unfriendly states. In England democracy has found itself caught almost unawares in the problems of an enormously expanding empire which involved government of numerous races of all stages of development and of colonies remote from the supreme authority. As Lord Cromer has keenly stated the problem, the issue seems to lie between good government and self government. In the case of the colonies the problem has been measurably solved along democratic lines. In the case of India it has grown more serious. In its internal policies British

democracy has been confronted with the ancient distinctions of class which have yielded slowly before the demands of the less favored classes and yet have yielded in important respects. In the United States democracy has faced the inherited question of race division in the south, has seen an extraordinary intensification of power of corporate wealth against which the laboring classes have contended with varying success, and in the third place has blundered almost unthinkingly into a new problem of empire. Fortunately the economic profits in the Philippines have not been so dazzling as to blind the people to the seriousness of abandoning lightly the standard of self government, and despite the frenzy of a few the American people as a whole has not been disposed to follow the invitation of those who urge us to "pluck the ripe apple" which hangs at our southern border. The race problem has perhaps seen less advance toward solution, yet the great leader of the Negro people who recently died felt far from discouraged at the results of his labors toward giving the Negro economic standing and self-respect. The economic problem has occupied the greatest share of attention. So long as we have in America political equality with economic and educational inequality, so long as we have self-government in politics and autocracy in industry, we shall doubtless be in unstable equilibrium. And for America no less than for Europe the war brings its problems to democracy. In the midst of arms not only are laws silent but the individual everywhere must bow to authority. On the other hand efficient national organization tolerates no neglect of any member of the community. With such opposing forces democracy must view with anxiety the decision of the tremendous contest now waging. The conditions of peace may easily make possible the advance of genuine democracy or they may set back progress for decades.

The conceptions of family life and the ethics of the sexes have undergone important criticism. The dramas of Ibsen and Strindberg and Brieux, the essays of Ellen Key, the activity of the Bund für Mutterschutz, reflect continental European aspects of this problem. The increase of divorce and the contest for suffrage are American phases. In both we recognize a greater

demand for individual liberty and self-direction in the most important of human relations. What makes the sex relation ethical? Is a marriage, ecclesiastical or legal, necessary to make ethical the function of motherhood, or conversely is parenthood and its responsibilities the supreme sanction for sex relations? If there is to be a single standard for the sexes shall it be the woman's standard or the man's? Is permanence relatively unimportant as a justification of the sex relation and should some other conception such as integrity take its place? Is there a right to motherhood, and likewise a right to limit childbearing? These are fundamental questions scarcely heard as yet by the great masses but raised seriously by the few. The tide is now setting strongly toward increased liberty, yet for those who look back over many similar tides in human civilization and for those who believe firmly with Bishop Butler that morality is not an invention that must be bolstered by fictions or authority, there is ground for belief that the new forces will set their own limits and humanity move soberly on toward the standards of democracy and freedom in other lines which it has already achieved in larger degree in political life.

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SOME THOUGHTS ON THE LAST QUARTER CENTURY IN PSYCHOLOGY.

IN the editorial preface to the first volume of this REVIEW, the following words occur: "Psychology, which by enlarging its field of observation and improving its methods of investigation, has within the last decade probably outstripped every other province of human knowledge in the rate of its growth." There are many who, like the writer of the present article, whose own acquaintance with psychology is exactly twenty-five years old, can vividly recall the irresistible attraction with which this rapid flowering of a new science drew them to work in its soil, and the enthusiasm with which they entered a field that promised so rich returns. It is interesting to look back, as one reaches the end of a quarter century, and ask whether one has reason to be disappointed in the continued progress of the science. It should not, indeed, have been expected to continue to outstrip all other provinces of human knowledge; we should be contented if it has maintained a steady and healthy growth. For while the fact that one discovery gives rise to many others would appear to make possible the advance of a science in geometrical ratio, this rate of progression is modified by the fact that difficulties also have a fashion of increasing geometrically. Within the scope of a short article it would be absurd to attempt an account of the accomplishment of psychology in the last twenty-five years. I shall try only to set down a few reflections suggested by the retrospect.

"Enlarging its field of observation"—has psychology continued to enlarge its field of observation? The accumulation of new data within its original field is testified to by the fact, among others, that the fourth edition of Wundt's *Physiologische Psychologie* has 1,248 pages and the sixth edition 2,185 pages. The two editions are twenty years apart in date, and the plan of the work has never been substantially altered. The advance into

new regions is suggested by a comparative study of the first volume of *The Psychological Index*, and the last volume, twenty years younger. The following are samples of many headings used in the last volume and unknown to the first volume: Social Psychology, Educational Psychology, Psychoanalysis, Psychology of Values, Psychology of Testimony, Religion and Myths, Advertising. When THE PHILOSOPHICAL REVIEW was founded, there were in existence two American psychological journals, both established and edited by G. Stanley Hall: *The American Journal of Psychology*, five years old, and *The Pedagogical Seminary*, one year old. We now have in America, exclusive of monograph series, special journals devoted to non-experimental articles, to digests of psychological literature, to abnormal psychology, to mental defectives, to religious psychology, to race psychology, to educational psychology, to animal behavior, to psychoanalysis, to experimental results, and to applied psychology so far as it is not covered by other journals. Certainly, it does not look as though psychology had ceased to widen the borders of its domain.

"Improving its methods of observation"—this, after all, is the real touchstone of progress. It is of little credit to a science to push its endeavors into new fields if the exploration is carried on without proper equipment. When students of other sciences read popular accounts of the wonders of applied psychology, for instance, we cannot blame them if they say that all psychologists are either liars, or ignorant of the first principles of scientific method. James,[1] in the second number of this REVIEW, replying to Ladd's criticism of his conception of psychology, said, "We live surrounded by an enormous body of persons who are most definitely interested in the control of states of mind, and incessantly craving for a sort of psychological science which will teach them how to act. What every educator, every jail-warden, every doctor, every clergyman, every asylum superintendent asks of psychology is practical rules." This pressure from the practical side, far greater than has been experienced by any other science, is responsible for an overestimation on the part of the

[1] "A Plea for Psychology as a 'Natural Science.'" PHILOSOPHICAL REVIEW, Vol. I, p. 146.

public and a few ill-advised psychologists, of the present equipment of applied psychology. The fact is, of course, that we have as yet no really satisfactory tests, for instance, of the fitness of an individual for a given vocation. Both in this field and in psychological investigations of the technique of advertising, the most formidable difficulty is that of reproducing in the laboratory the emotional conditions of actual life. What a man will do in a laboratory test is a very imperfect indicator of what he will do under the stimulus of the great vital motives in an actual vocation. His response to an advertisement in the laboratory may be quite unlike his reaction when there is really a question of spending his hard-earned money for an advertised article and doing without something else. Again, experimental tests of the credibility of witnesses are perfectly feasible and valuable, with the rather difficult proviso that the witness is willing to cooperate with the tester. But in spite of these discouragements, nothing offers more hope for the future of experimental applied psychology than the personnel of its present leadership. This year there is being founded "The Economic Psychology Association," with an executive board composed of the heads of great manufacturing concerns, the general superintendent of the Pennsylvania Railroad, representatives of life insurance companies, and four well-known psychologists. The Carnegie Institute of Pittsburgh is calling to its aid a strong staff of psychologists to help solve its eminently practical problems. It is impossible to associate such names as Thorndike, Hollingworth, and Scott, to mention no others, with unsound scientific methods, and whatever reproach has attached to overconfidence in the field of applied psychology will soon be removed.

The formulas for calculating correlation, which psychology has received from the statistician, are perhaps the most useful of the new tools which the science has gained during the quarter century. Not only do they throw much needed light on the real significance of mental tests, but they promise great service to general psychology. A test, of course, has to be a procedure whose results can be expressed in numerical form. This requirement can be easily met where the function tested is simply the

ability to discriminate between stimuli; we need only secure physical measurements of the stimuli. But for testing such higher mental processes as attention, recall, recognition, the construction of new ideas, we are restricted to measuring either the amount of work accomplished in a given time or the amount of time required to accomplish a given task. And neither the time required for mental work nor its external results, in the form of the number of syllables learned, of additions made, of letters cancelled, for instance, give us adequate information as to the precise mental functions through the exercise of which the work was done. Thus it is often said of the mental tester that he does not know half the time what he is testing. But if we can arrange the various individuals of a large group in the order of their excellence of performance in two tests which are of seemingly disparate function and find by the use of a correlation formula that excellence in one involves excellence in the other, then we know that the functions tested have a common factor; if on the other hand the results of testing what is supposed to be the same function by two different methods give a low correlation, we know that unlike functions were really involved.

Tests of normal mental capacity are still undergoing such analysis by the correlation method, and are therefore in a formative period. Defective mental capacity offers a much simpler problem, and by using the latest revision of the Binet tests, supplemented by a large and increasing number of other tests, psychology has been enabled to enter on a work of the highest practical importance in separating mentally defective from normal children. It is able also, in the case of certain elementary processes of education, to measure with a very fair degree of accuracy the efficiency of teaching, as by the use of the Courtis arithmetic tests.

Social psychology is one of the new fields as yet almost untouched by experiment, with the exception of the experimental study of suggestibility inaugurated by Binet. Comparative psychology, on the other hand, has the most brilliant record of any new field as regards the development of methods. The technique of studies on the sensory discrimination of animals

has wonderfully advanced since Graber and Lubbock attempted to base conclusions as to an animal's power to discriminate stimulus differences on the stimulus preferences it displays. We now supply carefully graded motives in the form of electric shocks; we present the stimulus in the purest form by the use of elaborate apparatus; we guard against giving the animal extraneous cues by keeping carefully out of sight and hearing; we can, if we choose, measure the fineness of the discrimination by the salivary reflex method, and if we are sure the animal will not be made abnormal in other ways, we can settle the question of the dependence of a given discrimination on a certain sensory apparatus by extirpating the apparatus. The scientific, experimental study of animal learning has been created in the past twenty-five years. The possibility of 'free ideas,' or their functional equivalents, in animals, the most difficult problem of comparative psychology, clearly formulated by the work of Thorndike, has been illuminated by Haggerty's demonstration of the occurrence of rational imitation in monkeys, by Hunter's method of delayed reaction, where an animal is required to wait a certain time after a stimulus has ceased before responding to it, and by the multiple choice method of Hamilton and Yerkes. These methods, with the conditioned reflex method in the hands of Watson and his pupils, offer chances for a direct comparison between animal and human learning.

So much for methods in the new fields of psychology; what of the status of methods in the old field of general psychology? The contest is warm at the present time between the adherents of introspection and its enemies. Introspection had its opponents twenty-five years ago and more, but the direction of the attack upon it has somewhat shifted. At the outset the objection was that introspection was in principle impossible; that states of consciousness could not themselves be the objects of examination by states of consciousness; that they must inevitably dissolve or be seriously distorted in the process. Now the line of attack is that introspection has produced no results of scientific value. There seem to be three different positions from which this attack is delivered. The most extreme is the view that inner experi-

ence, with which introspection deals, is wholly unimportant and uninteresting, if indeed it has any real existence at all. The non-existence of all inner experience, which is the logical deduction from some statements of the 'behaviorists,' of course really implies the non-existence of all experience whatever, and need not be given serious consideration. Titchener, in an article published a few years ago,[1] reports that at a meeting of experimentalists, it was cited as evidence against introspection that in tachistoscopic experiments it gives a wholly distorted account of the stimuli presented. Titchener urges that introspection does not undertake to describe stimuli, but conscious experience. What was actually, however, at the root of the criticism in the objectors' minds was probably the fact that they were not really interested in states of consciousness, and therefore thought an account of them worthless. It is sufficient to say in criticism of this attitude that it assumes the personal interest of the individual who maintains it, as the standard of what is worth while for science at large.

The second hostile position to introspection argues that where introspection is the only method of investigating a phenomenon, its results are so self-contradictory as to be worthless. (In distinguishing this position from the first and from the third, yet to be mentioned, I do not mean of course to imply that the same writers do not hold all three positions). Thus, "I firmly believe," says Watson in his first proclamation of his behavioristic creed, "that two hundred years from now, unless the introspective method is discarded, psychology will still be divided on the question as to whether auditory sensations have the quality of 'extension,' whether intensity is an attribute which can be applied to color; whether there is a difference in 'texture' between image and sensation and upon many others of like character."[2] There is no doubt that introspection is vulnerable at this point; careful, expert introspective work on the thought processes, for example, where no objective methods were practicable, has led to diametrically opposed conclusions with regard to the existence

[1] "The Schema of Introspection," *American Journal of Psychology*, Vol. xxiii, p. 489.

[2] "Psychology as the Behaviorist Views It," *Psych. Rev.*, Vol. xx, p. 164.

of 'imageless' thought. But let us postpone further consideration of this regrettable state of affairs until we have discussed the third accusation against introspection, namely, that it is valueless even when used in combination with objective methods for the investigation of mental phenomena.

What, as a matter of fact, have the results obtained by objective methods during the past quarter of a century owed to introspection? They have owed to it, one may say without extravagance, by far the greater part of their significance. In the early days of experimental psychology, many of its workers, delighted with the idea of psychology as wholly comparable with the physical sciences, proceeded with psychophysical experiments as if all that were necessary were to apply a measurable stimulus and take out a measurable reaction; as if the human organism were as simple as a balance whose swinging always indicates the same thing, a certain amount of weight applied. The possibility that two reactions equal and identical, so far as physical measurements could show, might represent entirely different events intervening between stimulus and response, was altogether neglected. Each of the three chief topics of psychophysical investigation, sensory discrimination, reaction time, and 'time sense,' was destined to have its early results wholly transformed and reinterpreted by the later workers who realized that unless introspection could throw light on the inner processes between stimulus and reaction, the numerical results were meaningless. Meumann's work on the time sense superseded that of all his predecessors by virtue of his use of introspection.

The distinction between sensorial and muscular reactions was of course due to introspection, and Ach more than doubled the value of the reaction experiment to psychology by making it an instrument, through the purely introspective controls he demanded of his observers, for investigating the strength of both associative dispositions and 'the will.' It was only through introspection that we discovered the fallacy of the assumption that when the observer is required to react after discriminating one stimulus from another, the time of the act of discrimination can be found by subtracting ordinary reaction time from the

total time. In the "Unterschiedsempfindlichkeit" of Martin and Müller we have a witness to the importance of applying introspection to the processes of sensory discrimination. The most recent works on psychophysics, Wirth's *Psychophysik* and Gemelli's *Il Metodo degli Equivalenti*, recognize the essential necessity of introspection: In the former the effect of the mental attitude of the observer is emphasized at the outset, while the latter explains his results in the realm of tactual space by referring to the influence of visual imagery, a suggestion first made by the author of the present article.

What has been the value of introspection to the objective methods used in the study of the learning processes? It may be indicated by a single fact: The greatest living worker in this field, G. E. Müller, the developer and standardizer of nearly all the objective methods for the study of memory, is also the author of the most thorough and sympathetic study of the method of introspection, of the best ways to avoid its dangers and safeguard its excellences. Is it likely that so fruitful a producer of objective results would be unreasonably biased in favor of an unscientific subjective method? Let us note only a few of the established results in the field of memory which are due to introspection. One can name them almost at random: the whole matter of the use of various types of mental aids in memorizing; the reason why the amount of labor expended in memorizing increases less rapidly than the amount to be learned; the effect of learning with intent to reproduce after different periods of time; the different learning types; the reason why the 'whole method' of learning is less valuable for children than for adults; the reason why the first repetition is more valuable than later ones.

Take, finally, that field where introspection would seem to a superficial consideration almost fruitless, abnormal psychology. From the point of view of the most recent theories in this realm, that which appears in consciousness and is thus open to introspection is misleading, and needs interpreting by reference to tendencies and 'mechanisms' which work below the level of consciousness. Yet it would not be extreme to say that every-

thing of value in the conceptions of the modern psychoanalytic school rests on introspection. Upon what kind of evidence is the assumption of such mechanisms as compensation or rationalization supported, save our introspective testimony that we sometimes catch ourselves in the act of whistling to keep up our courage or assigning to ourselves false motives for our conduct? On the basis of this introspective evidence we can believe that these processes occur in us even when we are not introspectively aware of them, but if no one had ever been aware of them in himself, they never would have been discovered at all. How could it ever have been ascertained that lengthened or otherwise abnormal responses in free association experiments are 'complex indicators,' if the introspection of certain observers had not borne witness to the existence in their minds of emotional disturbances accompanying such phenomena? Given this evidence, we can infer the presence of emotional disturbance not accessible to introspection from the occurrence of complex indicators, but only evidence originally derived from introspection can support such an inference. Psychoanalysis itself is of course nothing but a very rough and unscientific form of introspection. The mechanism of symbolism, to many of us the most untrustworthy assumption in the psychology of Freud and Jung, is dubious just because introspection gives uncertain testimony to it. Any two ideas in the universe may be so connected by associative links that one could serve as the symbol of the other, and if it be asserted that these links need not be accessible to introspection, we have absolutely no means of proving or disproving that a given idea did or did not act as the symbol of another given idea. The new abnormal psychology has obtained its hold, not by the presentation of objective results, such as statistics of cures, but by its appeal to the witness of introspection. When the ravings of a maniac were held to have no relation to mental facts, they could be explained only as due to physiological processes not to be introspectively studied; the new methods would connect them with mental causes not indeed open to the maniac's introspection, but similar to experiences accessible to the introspection of minds in a more normal state.

When we consider, then, the supreme importance of introspection as a supplement to objective methods, we need feel no discouragement in its defense. We postponed considering the less hopeful status of introspection in fields where no objective methods are available, as for instance, that of the higher thought processes. I am inclined to think that the unsatisfactory condition of affairs here is our own fault. Why should we not recognize that conflicting descriptions of the same experience, on the part of trained introspectors, are each of equal value and authority, and simply mean that the experience in question really differs in different minds? Why not, instead of arguing that 'imageless thoughts,' for instance, mean that their possessor does not know how to introspect, and that if he did he would be able to identify their sensation components, admit that real individual differences between minds may be the basis of these differences of opinion? The differences of opinion would then, instead of delaying the progress of science, serve as valuable scientific material. Let us not claim supreme authority for our own introspection and deny the authority of that of others. Let us, in general, welcome every new method without prejudice; let us in repeating the work of others rejoice more when we confirm it than when we overthrow it, even though our personal reputation may profit more in the latter case; let us console ourselves when our own work is overthrown by the thought that at least we may serve our science in the capacity of warnings against a false road. Thus the present paper, which began with a text, ends fitly with an exhortation.

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THE NEW DEVELOPMENTS IN PSYCHOLOGY IN THE PAST QUARTER CENTURY.

A GLANCE back at the state of psychology in 1892 when the PHILOSOPHICAL REVIEW was founded shows very important advances in practically every field. To be sure the main outlines of the science had been well developed. The attitudes and the more general methods were much the same as they are today. Wundt's system had reached approximately its final form; James had published his chief books, and Ribot had written his more important works. But much of the experimental work upon which the modern discussion is based was still to be done. With some important exceptions experiment had been confined to sensation, to Weber's Law, to space perception, and to reaction times. Ebbinghaus alone had worked on memory; only preliminary experiments had been made upon association and the ideational processes; the physiological accompaniments of mental processes had been little studied, and most of the results obtained were found later to be incorrect.

While the central problems of the science had been investigated relatively little, most of the applications and the branches of psychology had been almost neglected. Educational problems were still treated in an *a priori* way or as the result of unconfirmed opinion; psychiatry had felt the influence of modern psychological results and methods through the work of Kraepelin, but the experimental study of the mental processes of the insane was hardly begun. Animal psychology was largely a collection of anecdotes with incidental theoretical discussions. None of the many suggested or actually developed applications of psychology were even begun. Tracing the developments in each of these fields gives an interesting side light upon the methods and tendencies in the more central province.

It can be seen very readily that progress in each of these departments has depended upon the analysis of general problems

into part problems and upon devising new methods of approach. Both the problems and the methods are frequently suggested from the more theoretical and technical psychological results or from other sciences, and when once developed have an important influence upon other problems and in other fields.

The applications to education at the different stages show the influence of both factors. The first of the modern phases, child study, was no more than an extension of observation under careful conditions to infants and collecting more numerous data, in part from the untrustworthy source of the questionnaire. Beginning with Preyer's work child-study occupied a large place in the literature for several years. The net result was not important for either psychology or education. The extreme youth of the children used and the superficial methods employed made the results for education relatively slight. In retrospect the number of thorough studies made seems surprisingly small in view of the large amount of space the method had in the contemporary literature. Not more than a dozen children were studied thoroughly. The lasting results were also comparatively few. Baldwin got confirmation of the motor theory from his studies, but the suggestions for that as well as the emphasis on imitation came from Ribot and Tarde rather than from the observations and experiments themselves. To the questionnaire method we owe Stanley Hall's monumental work on Adolescence. After all, however, the main gain from this method was an increased recognition of the importance of an empirical study of the child and of educational problems in general.

The second factor that made possible an advance in this field was the application of the statistical methods of Pearson and his school,—the coefficient of correlation and the methods of obtaining a common opinion from masses of individual records or opinions. The application of the coefficient of correlation has made possible an empirical testing of the inheritance of mental traits, of the old controversy as to the value of general training or of formal discipline under the form of the transfer of training, and of the interrelations between many functions or capacities, innate or acquired. The methods for determining standards

from the opinions of a number of people have made possible standardization of grades and the determination of the progress through training. These same methods have given results in all sorts of problems in general and applied psychology. For the development and application of this method, Cattell and Thorndike and their students have contributed most.

In addition to these results from special methods particular problems both in teaching and studying have received much benefit from researches in general psychology. Studies of reading and writing, made to determine the general laws of perception and of motor activity, have given results that suggested practical applications. Studies of memory, of thinking, of animal learning, and of attention have given information that has been applied in practical ways. Educational theory has also profited or might profit from the newer results. Many of the hypotheses that were affirmed dogmatically a quarter of a century ago have been altogether refuted by these results; a few only have been confirmed in a modified form. Most of the problems in educational theory and practice have been affected by the experimental method,—either solved or modified in statement,—at the same time that many new problems have been raised.

In psychiatry and mental pathology psychology has provided new methods and has changed the attitude toward many of the problems. Down to the beginning of the period under discussion the psychiatrist had depended upon unaided observation for diagnosis, and his explanations were primarily in terms of nervous pathology, the latter in spite of the fact that for some of the diseases there was and still is no direct evidence of brain injury. From this time on more attention is paid to the mental causes, explanations are given in mental terms, and one hears more of mental laws. About this time, too, laboratories were established in hospitals for the investigation of the mental operations of patients and mental tests began to be called to the aid of observation. The first of these laboratories was founded by Kraepelin at Heidelberg, but this was soon followed by the establishment of one at McLean hospital and later at Washington. As a result of the work of these institutions and of others

working independently, tests have been developed that are rapidly making the diagnosis of mental diseases as accurate as that which has become possible in the earlier developed clinical branches.

The mutual relations between psychology and the clinically developed theory and practice in hysteria and related diseases offer much of interest. Here the advances in medicine have been most clearly reflected in psychological theory, and earlier psychological results and the general attitude of the science have most influenced clinical practice and theory. It was only a little before the period we are discussing that Janet began to publish his striking books. His conclusions he himself traces to the combined work of Charcot on the clinical side and to Ribot on the psychological side. The studies of hypnotism played probably the most important rôle in developing his theory, but these also were interpreted in the light of purely psychological fact and theory. The concept of dissociation arises naturally from the notion of association. This is fundamental in the explanation Janet gives of hysteria. When specific evidence for the existence of such a phenomenon was discovered in pathological cases, the uses that might be made of the notion in many connections, particularly in the explanation of the self phenomena, became evident.

The more recent theory of Freud and its modification by Jung, while it raises more controversial questions of a psychological character, can still be traced to psychological considerations. Freud's theory, too, goes back for its first formulation to a period about a quarter of a century ago. The assumption of a subconscious or unconscious can be traced to Schopenhauer and von Hartmann, although they had another purpose in assuming its existence. The struggle of the ideas below the threshold to enter consciousness is reminiscent of Herbart, while one may assert that to find the real forces in consciousness in personifications, in ideas that act as separate forces, has been a tendency manifest from the earliest animism to the present time. On the other hand the notion of dissociation in its most fundamental forms and the theory that dissociated ideas take on peculiar

force are an adaptation from Janet and his predecessors. Whatever its origin, we have in Freudianism the assertion that the determining forces in consciousness are below the conscious level,—in the unconscious rather than in the conscious,—that these are ideas that have been forced into the subconscious as a result of some emotional shock and that they are at all times striving to penetrate consciousness against the influence of the ordinary ideas.

The entire assumption that one should look to actual ideas somewhere outside of the field of consciousness for an explanation of mental phenomena is opposed to the notions of current psychology. In the first place it must be objected that the content of the subconscious or unconscious cannot be ideational in character. Consciousness and awareness are identical. What one is not aware of cannot be conscious. In the second place the assumption that it is unusual for the antecedents of mental states to be themselves unconscious is entirely contrary to fact. It is seldom that one knows in advance what is to come into consciousness. Many times the general trend is anticipated, but the specific idea is seldom or never foreseen. The causal antecedents of conscious processes are for the most part nervous, not mental. Even from analogy there is no reason to assume that sudden breaks in the train of consciousness need be explained by other conscious processes. Physiological or neural processes alone would suffice. The great disadvantage of the kind of explanation offered by the Freudian theory is that it is forever removed from observation and the theory can be neither proved nor refuted. One may gain an explanation for all of the observed facts by substituting the word neural or cerebral for subconscious and at the same time avoid unnecessary assumptions.

That these explanations of the known by the unknown tend to introduce a reckless multiplication of hypotheses is seen in some of the more manifest absurdities of the school. Leaving aside the assumption that all of the disturbing suppressed ideas or complexes are of sexual origin,—an assumption that has been frequently questioned on the basis of fact by physicians of other schools who have an equal chance for the observation of actual

cases,—it is evident that the hypothesis that the particular disturbance must be due to a complex of a preconceived sort is held to in spite of the facts. When the desired complex cannot be found, it is assumed that the worker is wrong rather than the theory at fault. Even weaker is the evidence for symbolism. In terms of the theory the complex that causes the trouble is always striving to enter consciousness in the same conscious way in which the small boy struggles to get under the circus tent. The prudery of consciousness is constantly on guard as a censor to keep it from appearing. As it cannot escape observation in the more wakeful moments and in its real form, it takes advantage of the censor's being off guard in sleep to present itself as a dream, or in the waking life it takes on some disguise and presents itself in consciousness as an innocent idea which is nevertheless a symbol of the harmful memory or event. Both the evidence that all dreams are significant of the character of the subconscious complex and the arguments given for symbolism are of a kind that could be made to prove almost any statement. The idea asserted to be a symbol is nearly always one that is very frequent in the experience of every man, normal as well as abnormal. Similarly the complex is always one of frequent occurrence in hysterical patients. It is fairly easy to demonstrate that any patient with a given complex will also have the symbol. The converse conclusion that any individual who shows the symbol also has the complex is not so safe. Mill's second canon may be recommended to the Freudians in this connection. The extension of the theory to the interpretation of myths,—the assumption that the symbols assumed to represent complexes in an hysterical patient also represent similar things in the myth,—rests upon an assumption doubly attenuated.

The strongest argument advanced for the truth of the theory is that it works in practice. Undoubtedly very many cures have been made by the method of psycho-analysis and similar modes of treatment that have been developed by the Freudians. Whether these cures are due to the reasons assigned by the school or cult is not so certain. It must be remembered that the methods of treatment involve giving the patient much more

time, consideration, and sympathy than has been usual in medical practice, and in consequence many strong suggestions. These treatments through suggestion have always been successful whether given by the exorcist, the Christian Scientist, or the physician. The actually observed symptoms and methods of cure might as readily be expressed in neural terms as in terms of consciousness or subconsciousness. However, whatever may be thought of the theory itself, it has done more than any other movement to impress the physician with the advantages of the psychological methods and attitudes.

In the discovery of the complexes use has been made of several methods borrowed or adapted from the psychological laboratory. Jung's association method, which interprets a delay in the response made to some word shown to indicate the presence of a complex, and the delay itself as the result of the emotional disturbance, excited by the concealed idea, is an ingenious development of psychological experiments. The galvano-psychic method, while psychological in spirit and in application, was developed most completely in the diagnosis of hysteria. On the whole this particular branch of mental pathology has contributed more to psychology than psychology has contributed to it. It must be asserted that the discussion of hysteria and Freudianism in particular has raised more problems than it has settled, but the facts themselves, and the theory of dissociation in its general forms find many analogies in normal psychology and explain many facts.

Perhaps the most direct influence of psychology in any practical field, certainly in the field of pathology, has been through the development of tests of intelligence. Attempts to develop tests have been made from the beginning of experimental work, and while many of the individual tests suggested early were as good or better than those used later, it was not until a common standard was proposed that any were generally applied. The standard generally accepted was suggested by Binet and Simon in 1905. The characteristic of the method lay first in determining what children of different ages could accomplish in different tests and then in comparing the accomplishments of patients

and other individuals with them. It provided at once a scale and a test, and in consequence was generally adopted. While the tests are by no means perfect and suggestions for improving them are constantly being made, they do provide a point of departure and have proved very valuable when used with caution and intelligence.

The scale has been successfully applied to the detection and measurement of mental defectives in many different relations. First they were applied in the schools to discover the children who did not have sufficient ability to profit by the ordinary work. These could then be isolated and given special training in work that they could master. Many school problems yielded at once to the mere elimination of the unfit. More generally interesting was the discovery that much of crime and poverty was also the result of lack of mental development. Tests of criminals show that twenty to fifty per cent. of the individuals who pass through reform institutions are mentally subnormal. They are less than twelve in mental age. While their instincts are fully developed, the normal control is very much reduced. Evidently the usual forms of punishment and prevention can not be successfully applied to them. The discovery that much of crime and poverty is rooted in mental incapacity has already had an influence upon the treatment of many social problems, and when its meaning is fully appreciated it will make possible many important reforms in more than one field.

In the realm of pure science the development of animal psychology is the most important phenomenon in the outlying fields. Thorndike's first paper in 1898 may well be regarded as epoch making in this field as it marked the first of a series of experimental studies upon animal activities. He first applied experiment to this form of animal investigation in any thorough way. He showed that chicks, cats, and dogs learn by a slow process of trial and error, that the animal first hit upon the correct movement by chance and only after many repetitions did it develop the chance movement into a habit that would cause it to be made at once when the problem was presented. This conclusion has been confirmed for many animals from the crayfish to the

anthropoid ape and for all sorts of problems, although opening doors and running through mazes have been most used.

While these problems of learning have held the most prominent place, much progress has been made, particularly in the most recent times, in studying the sensory processes of animals. The degrees of sensitivity to different light waves, the sensitivity to chemical stimuli and to sound have been tested upon a wide range of animals. The development of instincts and the relation between instinct and training have been carefully and in many cases conclusively determined. Imitation seems to have been largely eliminated as an explanation of any but conscious learning. Conclusions on both of these problems can apparently be transferred to man with no appreciable change in their formulation, but they can be worked out on animals with much greater certainty.

One of the most important general problems for animal psychology and for general interest is the question of whether animals think or, in the more general form, whether and to what extent one may ascribe something like human consciousness to the lower animals. This problem has been prominent in the minds of philosophers from a very early period. It seems to have been more or less overtly conscious when the modern experimental work began. Of the biological workers, Loeb attempted to mark off a line between higher and lower animals by demonstrating that the activities of lower organisms could be explained in purely physical and chemical terms. Like plants they were said to possess tropisms only, while the higher organism must be more like man and act through associative memory. Bethe made the statement for the lower organisms more definite in the assertion that certain physico-chemical processes, surface tension, osmosis, and more strictly chemical reactions were sufficient to explain all activities of animals up to and including ants. Jennings attempted to confirm Bethe's results, but early came to the conclusion that the assumption that physical and chemical processes alone were needed for the explanation of the activities was not justified even for unicellular animals. In some of the lowest he detected

signs of learning in the simplest form, the modification of acts as a result of earlier activities. At the same time he found no reason to assume that any consciousness accompanies the movement. He suggested the term behavior to designate this form of action. The term has been commonly accepted and extended to cover the activity of the higher organisms as well, since viewed from the outside they too show merely an increasing complexity in the same kind of action. At no point can one be sure that a new type of control is introduced. This concept of behavior has proved very useful. It serves to distinguish organic from inorganic activities, the activities of the organism as a whole from the actions of different organs which are discussed by the physiologist, although both physical and chemical processes and the action of the parts are assumed to be necessary for the action of the whole. At the same time it implies nothing as to the presence of consciousness. Acts are explained in terms of instincts and the previous experience of the individual, rather than by physiology or chemistry on the one side or by mental states on the other.

It is interesting to note that there is a marked difference in the conclusions drawn from these observations with reference to the problem of consciousness. While all would agree that the problem of consciousness should not be raised with reference to the lower organisms, one school, led by Watson, does not stop with the assertion that it is indifferent for the animal psychologist whether mental states are or are not present, but asserts a positive negative. Yerkes on the contrary believes that the problem of the existence of consciousness should be raised for the higher animals and that it must be answered in the affirmative. Watson from introspection and probably under the influence of the imageless thought doctrine and neo-realism insists that consciousness has no existence in man or in animals, that all activity, human as well as animal, must be explained from the outside. Yerkes on the other hand not only accepts the commonly held belief in human consciousness, but is satisfied that images play a part in the control of the action of the higher animals. The fact that actions may be delayed beyond the time of stimulation

and the similarity of many animal acts to those accompanied in man by consciousness convince him that consciousness must be assumed to explain their acts. Either theory is consistent with its premises, and here as elsewhere choice of premises seems to depend in part upon individual peculiarities. Whether one pictures man after the nature of animals or animals after the nature of man seems largely a question of individual taste.

In many practical fields psychological investigations are beginning to find application. The first of these to develop any degree of importance, the psychology of advertising, began by formulating the results of general psychology as they might affect the special problems of catching attention, of producing an impression which might be remembered or bring out the response of buying. More recently experimental study of the problems with actual advertising material and under natural conditions has been made. This has made it possible to solve certain of the advertising problems in the laboratory. The *Aussage* studies of Stern have given results with a direct bearing upon the reliability of testimony, and, after a first rejection because of too strong claims on the part of its supporters, seem to have had an effect upon the legal theory of evidence. With the development of mental tests for the lower grades of intelligence there has also come an application of methods to the discrimination of higher grades of mental capacity and these are beginning to find application in selecting men for the occupations. Telephone girls, clerks and stenographers and even salesmen are selected in part on the basis of psychological tests. The psychologist might dream of a society in which each individual should be measured and assigned to the place for which he is best fitted, and then instructed in the best and most economical use of his capacity in the performance of the task that has been given him. The realization of such a dream, if such realization be desirable, implies a very great advance in our present knowledge, of course, and also demands great tact and good sense of the workers in the practical field. Exaggerated claims always arouse opposition and set back the time when even well determined results shall be given application. Meantime there are

many problems in every day life which can be solved by psychological methods already developed, and many others in which the errors that would be made by those methods are much less than those made daily by the present rule of thumb solutions.

Our discussion has been limited to the changes that have been taking place in the outskirts of psychology, but many of these changes have been associated with movements that have been going on in the more central problems. In some cases one may trace the cause and in others the effects in the more general field. But in practically every case changes in point of view in one department have influenced the others. The most striking phenomenon in general theory has been the relatively slight change in twenty-five years, the persistence of opposing or contradictory theories, and the capacity of different men for drawing opposite conclusions from the same premises and the same observed facts. Through the quarter century there has been little or no tendency towards a common standpoint. If anything the opposing general principles are more firmly held and are more clear cut than they were at the beginning of the period. We may divide all forms of explanation into two groups, the animistic and the causal. The one seeks the final explanation in a single force that is often given an anthropomorphic form; the other is only content when each element has been reduced to some other element, itself more completely known than the first. We find that both types have persisted, perhaps with an increase in the animistic during the period.

If we accept these as the two most general points of view, we find that neither has been abandoned at any time and that there have been many fluctuations in the degree of acceptance of each. Cases are numerous in which there has been adherence to one or the other of the schools where it would be least expected. Thus, the explanation of the Freudians is definitely animistic, although the natural tendency of the neurologist or physician is towards a causal, even a mechanical theory. The complexes are described as plotting to enter consciousness, to escape the censor, and as units that think as elements and are independent of the total self. As stated by its holders this view is almost

on a level with the mythical explanations of natural phenomena in terms of concealed gods or giants. It is the more surprising as the observed facts may be quite as easily stated in neurological terms and the explanations would be quite as effective in those terms. A more conscious animism is seen in MacDougall and of course in Bergson. This attitude seems quite as foreign to the earlier work and premises of the former as it does to the Freudians.

Within the field of general psychology we find a very curious difference of opinion concerning the explanation to be given for the so-called imageless thought, perhaps the most discussed of all recent problems. The believers in imageless thought as a unique phenomenon have divided sharply into two schools. One takes what seems to be a completely animistic position. The thinking operations are carried on in a realm above the observed consciousness and even seem to be the products of a super-conscious activity as the complexes of the Freudians are of a sub-conscious activity. At least it is an operation that is subject to no known laws and has an authority higher than that of the normal consciousness. By the other school consciousness is denied all existence and the explanation of all so-called mental processes is to be found in the physical or physiological. If these highest operations require no consciousness obviously the simple processes of every day life need none. Consciousness can be wiped off the slate altogether and all acts traced to forms of behavior. The processes that suffice for the animal suffice also for man. Thus the conclusions of behaviorism and of introspection mutually support each other. Animism and materialism are each inferred from the same set of facts. It should of course be insisted that between the extremes of animism and behaviorism, there is another possible explanation, that still held by the majority of psychologists. This is the explanation of mental states in terms of other mental states. Just how these states are related to the neural processes is not asserted, but the antecedent that is observed and given a causal character is mental not physical. This is as much opposed to animism as is behaviorism. The choice of one rather than another of these

general principles of explanation seems so little related either to the known facts or to the earlier experience of the psychologist that it can hardly be regarded as other than arbitrary.

As one compares the psychology of the present with the psychology at the time the REVIEW was founded, one sees that the advance, great as it is, has not been in the line of development of a single system or even in a tendency to accept a common view-point. Rather has it been in the accumulation of facts in an ever widening domain and in the development of complete or partial explanations of separate problems. In general it may be said that less emphasis is now put upon description and classification of mental states and more upon the causal or dynamic explanation of mental activities and accomplishments. During the whole period the changes have come as a gradual growth, there have been no revolutionary discoveries, and most of the great changes in point of view that were proclaimed or proclaimed themselves to be epoch making have with time proved to be less striking and of less importance than they seemed at first sight.

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REVIEWS OF BOOKS.

Encyclopedia of the Philosophical Sciences, Vol. I. Logic. By ARNOLD RUGE, WILHELM WINDELBAND, JOSIAH ROYCE, LOUIS COUTURAT, BENEDETTO CROCE, FREDERIGO ENRIQUES and NICOLAJ LOSSIKIJ. Translated by B. ETHEL MEYER. New York, The Macmillan Company, 1913.—Pp. x, 269.[1]

The present Encyclopedia of the Philosophical Sciences was inspired by Hegel's work. It is an attempt at coöperation amongst philosophers without a surrender of individual independence. But if one of the editors, Arnold Ruge, who writes about the underlying purpose of the Encyclopedia, in the introductory paper, saw primarily the idea of *unity* in the various ways of treating logic, the reviewer is impressed with the *multiplicity* of the points of departure.

The discrepancy which is so apparent as regards theories and results is in good part due to the fact that the writers treat of wholly different problems. In the following pages I shall content myself with presenting in some detail the principal results of these various ways of viewing and solving the problem of logic. In a separate paper I hope to sketch these currents of logical theory in their proper setting, examine their mutual relations and disentangle the problems which they attempt to solve.

Wilhelm Windelband contributes the first systematic paper, entitled *The Principles of Logic*. He conceives the task of Logic in so comprehensive a way as to regard it as the "Philosophical Doctrine of Knowledge," the "Theory of Theoretical Reason" (p. 8). He adopts the transcendental method of the Critical Philosophy of Kant and is, as far as his general position is concerned, in agreement with the Marburg School, though the latter is nowhere mentioned in his paper. By taking the fundamental problem so broadly he hopes to unite the many different methods of treating logic in a comprehensive whole and to develop them organically in their articulated order.

The transcendental method of Kant takes the various sciences as

[1] The review of this significant volume has unavoidably been much delayed in publication. Since it was written, two of the contributors, Professors Windelband and Royce, have died. I have, however, not thought it wise to reformulate or expunge my comments on their papers.

a fact and enquires, What are the conditions which make these sciences possible? But Windelband takes as given, besides the sciences, "a mass of immediate experiences of the prescientific consciousness" (p. 9); and the problem of philosophy is "to discover how far general postulates of reason [*Vernunftinhalte*], which are independent of the specific conditions of humanity and which find their justification entirely in themselves, have attained to consciousness and effective value" (p. 9). The Marburg School emphasizes the *objective* aspect of the transcendental method, the reference to the sciences; Windelband dwells on the *subjective* aspect, the reference to human reason. And as there are, for him, three "fundamental psychical activities," namely of *knowing*, *willing*, and *feeling*, there are correspondingly three forms which human culture has taken: *Science*, *Morality*, and *Art;* and three corresponding fundamental philosophical sciences: *Logic*, *Ethics*, and *Aesthetics*.

The first part of the paper entitled "Phenomenology of Knowledge," treats of the empirical material which Logic takes as given. This part is introductory; it does not furnish any *principles* of Logic. Logic itself is divided into "Formal or Pure Logic," "Methodology," and "Theory of Knowledge," which are treated respectively in the remaining three sections of the paper.

In Phenomenology of Knowledge the "fundamental fact" is the distinction "from the point of view of value" (p. 11) between the *true* and the *false*. According to the "immanent theory of truth," as distinguished from the "transcendent" or "representative theory" [*Abbildtheorie*], truth is concerned with the *relation* between ideas, *i. e.*, with judgments. Windelband points out the distinction between the *content* of the judgment and the *attitude* taken towards its truth value, *i. e.*, "the affirmation or negation, the acceptance or rejection, adoption or refusal of the content of the judgment (p. 14)." Whitehead and Russell have recently (in the *Principia Mathematica*) emphasized the logical importance of this distinction, and (following Frege) use a special "assertion symbol" to single out assertions from propositions such as definitions which are not asserted. Windelband seems inclined to doubt, and rightly according to my mind, that this distinction is valid for logic. But his statements are somewhat ambiguous. Does he, or does he not believe that the "moment of assent" is a *logical* aspect of judgment? From his discussion on p. 15, one is tempted to say that he does not consider it so; yet, on the next page, he defines judgment logically as "the assertion of a relation." The difficulty which he urges seems to me to rest on a simple

confusion which characterizes his whole position. I may (and often do) assent to a false as well as to a true proposition. My assenting or not assenting is determined by conditions which do not *make* propositions true or false; they belong to a wholly different order of problems. But Windelband makes the truth of a proposition *depend* on this feeling of validity (formal truth). On the contrary, one should say: *Logically* it is a sheer accident that the feeling of validity takes place (at least ordinarily) when we meet *true* propositions. That, as a matter of fact, they often do happen to coincide, must be explained *biologically;* it is not a legitimate problem of logic at all.

The task of Formal or Pure Logic is "to isolate by abstraction those forms of thought which are indispensable to the attainment of truth in perceiving [*Erkennen*] and knowing, and to exhibit their immediate evidence" (p. 22). Formal Logic does not treat of all forms of thought, but merely of the "*forms of right thinking*" (p. 23). This Windelband deems sufficient "to mark out the difference in principle between Logic and Psychology" (p. 23). As the science of the Forms of Right Thinking, Logic is a *normative* discipline. Yet this is only one side of Logic, namely "the side which it turns toward empirical thought" (p. 24). "And here we come on a double aspect of all logical laws: on the one hand they are rules for the empirical consciousness, according to which all thinking which has truth for its aim should be carried on; on the other they have their own inner and independent significance and being, quite independent of the actual happening of ideational processes, which are or are not in accordance wth them. We may call the latter their *value-in-themselves*, the former their *value-for-us*" (p. 24). This distinction seems to me fundamental and of far-reaching importance; but I feel that if it had been carried through consistently in the present paper, it would have led to a very different system of Logic. For does not this 'double aspect' of all logical laws lead to two distinct sciences, the one dealing with the "*objective* meaning" (p. 25), their "inner and independent significance and being" (p. 24), the other with the *subjective* aspect, their coercion for our empirical thinking, compelling of assent in ourselves and in our opponent? The latter, it would appear, even from Windelband's point of view, ought to be a chapter in Psychology; the former Logic properly speaking. Windelband recognizes that the normative constraint of our rational consciousness must be based on *objective* grounds of the thought-content itself; there is "such an immanent inter-connexion that if something is valid [*gilt*], then something else is valid and something else is not

valid" (p. 25). Here was a chance for a clear separation of logical from psychological problems, which Windelband in his paper attempts to make. But he has not taken the chance. For him this objective meaning contains for Formal Logic "a presupposition which cannot be proved because it is itself the principle of all proof. The same holds good for the methodological treatment of all the rules of right thinking which Formal Logic can lay down. . . . But if any man stumbles at the fact that when we want to think about thought we must, in so doing, already follow the norms of right thinking—there is no arguing with him" (p. 25). Of course not, because you yourself blocked the way to a valid reply. For can there really be any doubt that you must use your 'laws of right thinking' when you want to think rightly about these laws of right thinking? You are turning in a circle—and blame your opponent for it! Yet, how easy it would have been to escape the dilemma!

The two most pregnant points of view in the doctrine of judgments "are quality and relation" (p. 29). The quality of judgment leads to the laws of thought; and relation between judgments is the subject of the doctrine of categories. This forms the climax of all logical theory (p. 33).

We need not examine the deduction of the system of categories from the principle of synthesis. The whole discussion lacks that rigor which we can to-day demand of similar work. The 'deduction' itself seems to be pure fancy and establishes nothing. There is not even an attempt to prove the necessity and sufficiency of the various categories; and without these a mere list of so-called 'categories' is of no avail. The breadth of the undertaking makes accuracy well-nigh impossible. The whole recent work in Mathematics and Mathematical Logic is completely ignored, even though it represents the most tremendous advance in logical theory since the time of Plato and Aristotle. Windelband has heard that there is such a thing as "Mathematical Logic." But it seems to him a comparatively insignificant affair, if not a vain endeavor: "There are logical principles of Mathematics, but no mathematical principles of Logic" (p. 39). But what does he mean? Is not "Mathematical Logic" in its most important form to-day "Principles of Mathematics"? Or does he mean to deny the possibility of a "Logical Calculus"?

On questions of the History of Philosophy Windelband speaks as a master; on Mathematics and Mathematical Logic not even as an apprentice. This is not an incidental objection—it is vital to his whole method of procedure. Logic, in Windelband's view, pre-

supposes all sciences for its material, and, we may infer, on the part of a contributor to logical theory, a knowledge of these sciences, not superficial, incidental, but intimate knowledge. This knowledge Windelband clearly lacks; and his theory suffers therefrom.

"Methodology" is treated in the third section. First the "*methods of proof and of refutation*" (p. 43) are discussed. This part is not only too brief, but, for the reasons above stated, altogether unsatisfactory. The second part, a discussion of the "*methods of investigation*," contains inspired passages; the living breath of the second edition of the *Critique of Pure Reason* permeates it; and such expressions as "the object's immanent conformity to law" (p. 46), "that *coercion of objectivity*" (p. 47), "the *Logic of the object*," seem to me admirable. But it is a pity that this whole discussion should be so largely occupied with Mathematics and Natural Science, rather than with the Historical Sciences. I, for one, should have been glad to hear from such an expert in this field as Windelband more about the "very fine and thoughtfully developed rules and instruments which, in some cases, stand in rich variety at the disposal of the *criticism* and *interpretation* of tradition" (p. 52), about "philologico-historical hermeneutics" (p. 53) and the rôle of the "logic of hypothesis" (*ibid.*) in this realm. They are referred to, but not discussed.

'Theory of Knowledge' inquires into "the relation of knowing to reality" (p. 55), *i. e.*, "the relation between that which is objectively thought and that which exists" (pp. 55–6). The central difficulty is met when we determine the nature of the 'something' which even Pure Mathematics presupposes and "whose existence and essence is quite independent of whether or not a knowing consciousness takes it for its object" (p. 57). To ascribe to it a 'Being' peculiar to itself has always led to Mysticism, according to Windelband. He, instead, follows the lead of Lotze who coined the term 'validity' for this peculiar 'something' which has "neither substantial nor functional reality or actuality" (p. 51). By 'validity' Windelband means "nothing else than the sum-total of the *inter-connexions* and *relations* between existents. They are not themselves existents, either as things, as states, or as activities; they can only become 'actual' as the content of psychical functions of knowing. But in itself the *realm of the valid* is nothing else than the *form and order under which that which exists is determined*" (p. 59).

It is quite obvious that under the title of Theory of Knowledge Windelband includes all that which is usually called Metaphysics; and he himself speaks of it as "Critical Metaphysics." It is of course

impossible in a review to enter into a discussion of so broad a question, particularly if the theory itself is stated so briefly. I can only say, somewhat abruptly, that I do not feel as hopeful about it as the author. From the mathematical point of view it seems quite insufficient to limit the 'valid,' as expressive of the peculiar 'something' which mathematics presupposes, to the *relations between* that which exists. And the mathematical relations are, strictly speaking, not at all between that which exists, but between 'somethings' *themselves mathematical*, call them what you please, *i. e.*, points, lines, number, collections, etc.

It would seem simpler to *begin* by assuming a special kind of existence, namely *mathematical* existence, and to introduce the general idea of *existence appropriate to a particular Universe of Discourse.* This allows us to introduce as many different kinds of existence as we need to get a particular science started. *Afterwards* we may raise the question of the precise relation between the different kinds of existence, *e. g.*, mathematical existence and physical existence. This is, of course, what a mathematician of to-day actually does. He is thereby enabled to begin without being obliged first of all, and before he has moved a step in mathematics, to decide on the most fundamental questions of metaphysics. And it is just as important for the metaphysician to proceed thus, for otherwise he cannot even state his problem.

The main purpose of Royce's paper on "The Principles of Logic" is to give a brief exposition of the doctrine which he calls the "*Science of Order*"; of it "traditional General, or Formal Logic is but a part, and in fact a very subordinate part" (p. 67).

The first section gives a general review of Methodology. It indicates summarily "how Logic as Methodology differs from and yet gives birth to Logic conceived as the Science of Order" (p. 69). This is shown for the *Deductive Method;* and similarly for the *Inductive Methods*, of which Royce mentions the *Method of Classification* (p. 74), the *Comparative Methods* (p. 75), the *Statistical Method* proper (*ibid.*), and especially what he calls the *Organized Combination of Theory and Experience* (p. 78).

Royce calls attention to the contribution made to the theory of induction by the American philosopher Charles S. Peirce.[1] The usual presuppositions, on which "our right to generalize from a limited set of data" (p. 79) are founded, namely the *uniformity of nature*,

[1] This seems an opportune occasion to call the attention of such organizations as the American Philosophical Association to the desirability of having the philosophical writings of Charles S. Peirce collected and published in a suitable form.

and the *principle of sufficient reason*, are not sufficient; nor are they always necessary. But to make generalization possible it is sufficient to assume that the "facts, and so the whole aggregate of them, whatever they are, have *some definite constitution*" (p. 83). Assuming such a definite constitution, we can find out what this constitution is by the "*method of sampling*," provided the samples are "fair samples." A "fair sample" of a collection "is a sample concerning which we have *no reason to suppose that it has been chosen otherwise than 'at random,'* or in a representative way" (p. 87). This method of sampling becomes particularly important in its application to the testing of hypotheses.

But the fact which for Royce stands out most prominently in the present connection is this: The "Organized Combination of Theory and Experience," this "most perfect of the scientific methods" (p. 91), requires "concepts and systems of concepts which admit of precise and extended deductive reasoning" (*ibid.*).

A review of Methodology leads thus to a discussion of the problems of the Science of Order, and in the second section Royce gives a general survey of the "*Types of Order*." This section is a statement, in Roycian terms, of recent investigations by mathematicians and mathematical logicians into the properties of relations, of classes, and of propositions which are the basis for the definition of "types of order" such as are used in the sciences. The most significant of these is "Serial Order." Instances of it are Numbers and Quantities. The application of these principles to the "theory and description of more complicated order-systems" involves the "Correlation of Series" upon which the whole theory of Mathematical Function rests (p. 116). The most important problem, from the point of view of deduction, is the problem of *elimination* of which the traditional "theory of the syllogism" is but a very special application.

This whole section calls for little critical comment; I mention two points only; the first concerns the relation of Classes and Relations, the second the concept of Classes itself.

1. "Relations are impossible unless there are also classes" (p. 106). There is no question that "relations" and "classes" are closely connected. But it is not warranted to assume, as this passage does, that relations *presuppose* classes, nor is there a *necessary logical* connection between the two. At all events Whitehead and Russell have made, in the *Principia Mathematica*, what seems to me a successful attempt to develop a theory of relations based on propositional functions involving merely *individuals;* classes occur as symbolic expressions, as

"quasi-things," but their existence is not assumed and they are in no way needed to define relations. Of course I do not mean to deny by this that relations *may* be defined as "Classes of Couples" (Peirce, Schroeder).

2. "The concept of a Class, in the logical sense, depends (1) Upon the concept of an . . . *Individual* . . . ; (2) Upon the concept of the *relation of belonging to* . . . ; (3) Upon the concept of *assertions* . . . ; (4) Upon the concept of a Principle . . ." (p. 106). It is undoubtedly true that an analysis of what we mean by a 'Class' will furnish these ingredients; but it is to be questioned whether this justifies the statement that the concept of Classes logically *depends* on them. To be specific, it is perfectly possible to develop a theory of classes without introducing the concept of an individual; in fact E. Schroeder has done so in his *Algebra der Logik* and this is one of the cardinal features of his work, as he defines what he calls an Individual on the basis of his Calculus of Classes.

It is to be noted, however, that in this presentation of logical doctrine the "*will to be rational*" (p. 111) already makes its appearance. The concept of an individual (and the same is true for that of classes) involves for Royce an "attitude of will." But these attitudes are not wholly arbitrary or of merely relative value: "We have an absolute logical need to conceive of individual objects as the elements of our ideal order-systems" (p. 107). This is further developed in the third section, which sketches "the logical genesis of the types of order"; it is the most original part of the paper. All the rest may be considered as introductory. Here he develops and justifies what he terms "Absolute Pragmatism." The "*central problem*" is: "What are the necessary 'logical entities,' and what are their necessary laws? What objects must the logician's world contain? What order-systems must he conceive, not as contingent and arbitrary, but as so implied in the nature of our rational activity that the effort to remove them from our world would inevitably imply their reinstatement, just as the effort to remove relations and classes from the world would involve recognizing both classes and relations as, in some new way, present" (p. 125).

For a solution of this central problem of the Theory of Order, Royce refers to two papers by A. B. Kempe, and his own paper published in 1905, in the *Transactions of the American Mathematical Society*. This paper developed the properties of the system which Royce calls a system Σ. The entities of logic satisfy the laws of the system Σ. The present paper shows that "*modes of action*" are a

set of entities which form a system Σ. "The result . . . is that it at present appears to be possible to define, upon the basis of purely logical relations, and upon the basis of the aforegoing principles concerning rational activity, an order-system of entities inclusive not only of objects having the relation of the number system, but also of objects illustrating the geometrical types of order, and thus apparently including all the order-systems upon which, at least at present, the theoretical natural sciences depend for the success of their deductions" (p. 134).

The preceding summary of Royce's masterly paper, has, I hope, at least brought home to the reader the fundamental nature of the problems which he treats, and the originality of the solutions which he gives. The paper is an example of the complete transformation which is taking place to-day in logical theory.

With most of what Royce says I find myself in entire agreement. His whole conception of logic as the Science of Order is bold and admirable. His discussion of the difficulties involved in the concept of an individual brings out points too easily taken for granted in current theories which point to psychological facts in order to solve logical difficulties. I agree with his rejection of self-evidence as a criterion for fundamental principles. Of particular importance is his statement that the principles of logic are neither purely empirical propositions nor purely arbitrary assumptions. If they are *hypotheses*, why are they *necessary?* To treat them *merely* as assumptions, as most mathematicians do, is insufficient. Here is a fundamental problem which calls for a solution, and Royce's solution certainly has much that is persuasive.

By way of criticism the following: Royce's theory of "Absolute Pragmatism" rests on the following grounds: His criterion of "absolute validity," his theory of the "Will to be Rational," and his introduction of "modes of action" as entities which form a system Σ, *i. e.*, satisfy at least all the laws of logic.

1. The criterion which Royce uses to determine '*absolute validity*' does not accomplish what he supposes it does. Of course I do not deny the principle itself, namely that 'a proposition which is implied by its own denial is true.' But this principle is *on a par* with other principles of logic. It does not in any way establish *absolute* validity.

2. Regarding the "rational will" or "the will to be rational" I can see that such an entity, if it existed, would furnish a *point d'appui* for the hypotheses of logic. But I agree with Mr. Russell in thinking that this rational will is irrelevant to the principles of Logic. The

clean separation of the logical problem from the psychological is important and necessary both for logic and for psychology. I prefer therefore a solution of the problem stated above which avoids the danger of complication with psychology. I have attempted such a solution in a paper entitled "The Generating Problem."[1]

3. I must confess to some difficulty in understanding precisely what kinds of entities modes of action are. They are distinguished from actions. Royce illustrates his modes of action by such examples as 'to sing' or 'singing', 'to dance' or 'dancing,'—in general 'to do something' or 'doing something.' This is clear as far as it goes. The difficulty comes when we try to understand what is meant by the 'contradictory' of such a mode of action. In what sense is 'not to sing' the contradictory of 'to sing'? We can readily see how 'I sing' is incompatible with 'I do not sing' or how a *class* of actions such as 'singing' is to be distinguished from the class of actions 'not to sing.' But in the one case we are dealing with propositions; in the other with classes, *neither of which is what Royce means.* Modes of actions are "open to any rational being"; but it seems quite necessary when we speak of contradictory modes of action that the reference be to the same individual or the same rational being, at the same time. These difficulties have their origin in the definition of the 0 mode and the 1 mode of action. The first is illustrated by the phrase 'to do nothing' or 'doing nothing,' the second by 'to do something' or 'doing something.' If we symbolize a mode of action such as 'to sing' by A, the contradictory by $\bar{A}$, then between the two ought to hold the following two relations: $A\bar{A} = 0$, $A + A = 1$. Products and sums have been explained; accordingly we have to translate these symbolic statements as follows: 'To sing and at the same time not to sing is equivalent to doing nothing,' and 'to sing or not to sing is equivalent to doing something'! Again, if A stood for a class of actions or for a proposition, the meaning of these two propositions, $A\bar{A} = 0$, $A + \bar{A} = 1$, would be clear. But in this application to modes of action as distinct from actions, they are not clear to me. However, I do not urge this as an objection to Royce's theory; but here are difficulties.

The first and longest part of Couturat's paper on "The Principles of Logic" comprising paragraphs 1, 2, 3, and 4, gives an outline of the principles of modern logic, or what has been variously called 'Symbolic Logic,' 'Symbol Logic' (Mrs. Ladd Franklin), 'Mathematical Logic,' 'Algebra of Logic,' and what Couturat, in previous writings,

[1] *Cf. Journal of Philosophy*, etc., Vol. X, No. 3.

has proposed to call 'Logistique.' The second part, paragraph 5, treats of methodology; the third, paragraph 6, of the relations between logic and universal language.

The first part, being itself a brief exposition of a large body of doctrine, more or less universally accepted among modern logicians, would call for very little comment, were it not for the fact that a number of rather confusing mistakes have crept into the account. Couturat has made a reputation by his lucid exposition of modern logic, principally, though not exclusively, of the ideas of Mr. Bertrand Russell in *Les Principes des Mathématiques*. In the present paper his symbolism "approximates most closely to Schroeder's" (p. 138). But a quotation from Bertrand Russell introduces his paper, and Bertrand Russell is present throughout.

It is appropriate that an account of 'Symbol-Logic' should be criticized first on the ground of the symbols which it uses. Couturat has deviated from Schroeder's symbolism in a number of important points. It would seem a reasonable principle that such deviation is justified only if thereby an improvement can be obtained. This is not the case here. He changed the symbol for inclusion and implication, using the one which he had already used in his brief book on *L'Algebre de la Logique*. This symbol has nothing to recommend it except the comparative ease in writing it. I am holding no brief for Schroeder's symbol; but if it was to be rejected, it would have better been for Charles S. Peirce's symbol, which Royce has adopted, or better still for Mrs. Ladd Franklin's.

As little can be said in defense of Couturat's symbol for negation. It is a modification of Schroeder's earlier symbol for negation, but it is noteworthy that Schroeder himself when, in his third volume, he came to the Algebra of Relatives, reverted to the horizontal line for negation, which seems by all means better than either Schroeder's earlier or Couturat's present symbol.

More serious is the objection to Couturat's symbol for a relative product, namely a star: (*). It is symmetrical, whilst the operation which it symbolizes is not symmetrical. (I call an operation 'symmetrical' if it obeys the commutative law.) Besides, the symbol is inconvenient. I can think of no good reason why Couturat should have abandoned Schroeder's altogether satisfactory symbol.

For the converse of a relation R, Couturat uses the symbol R^c. This is very bad. According to his own usage, this ought to be read: R to the power of c. Again I do not see why he did not keep Schroeder's well-suited symbol $\breve{R}$, which even such iconoclasts as Whitehead and Russell have adopted in their *Principia Mathematica*.

Following Peano (and Russell) Couturat writes the "variables as indices after the copula" (p. 150) to express: "is equal to for all values of x," or "implies for all values of x," etc. How inconvenient this may be, is shown on p. 161, where two formulae are altogether distorted, by printing the ϕ somewhat too high and giving the expression a wholly different and erroneous meaning.

About the force of these objections to Couturat's innovations, so far as symbols are concerned, there may perhaps be a difference of opinion; I do not think there can be any difference of opinion regarding the objections which have to be made to some of the contents of the paper. *Operations* and *relations* are confused with each other on page 141: "Negation is an operation or relation fundamental for logic." Now it is true that operations in logic can be *expressed* in terms of relations, but the two are very different. Negation is an operation, not a relation. The paper confuses concepts (and classes) with propositional functions, just as it confuses relations with propositional functions. "A concept is a propositional function with one variable" (p. 157). Of course Couturat knows that a concept or class *is* not a propositional function, but is *determined* by a propositional function. To use Mr. Russell's symbolism, it is not $\phi(x)$ which represents the class, but $\hat{x}\phi(x)$. Similarly for relations: "What, then, is a relation? . . . it *is a propositional function having several variables*" (p. 170). "Let the relation be: 'X is the father of Y'" (p. 179). Of course "X is the father of Y" is not a relation but a *propositional function*, to use Russell's expression, or a "*Relativ-Coefficient*," to use Schroeder's. 'Is the father of' is the relation and a relation is therefore not represented by $\phi(x, y)$, but, *e. g.*, by $\hat{x}\hat{y}\phi(x, y)$, according to Mr. Russell's usage.

It is a consequence of this confusion between relation and propositional function that *inclusion* of relations and *implication* of propositions should be confused with each other. "To say that R_1 is contained in R_2 is the same as to say that it *implies* it" (p. 172). The symbolic statement here is correct, but the English equivalent just quoted is incorrect. It ought to read: "To say that R_1 is contained in R_2 is equivalent to saying that the corresponding propositional function (xR_1y) implies the propositional function (xR_2y)."

The definition of relative multiplication, "the most important operation in the calculus of relations" (p. 174), is wrong. It ought to read: "If there are given two relations R_1 and R_2, *and if there exists a y, such that* . . . " the rest remaining as on p. 174. On p. 163 Couturat reads the symbolic statement: $\overline{ab} = 0$ as follows:

"It really expresses the nullity (non-existence) of the class $a\bar{b}$: 'a which is not b does not exist.'" What he ought to say is: "The a's which are not b's do not exist," or "There is no a which is not a b," *i. e.*, "There is no *individual* or *member* of the class $a\bar{b}$," *i. e.*, "The class ab is a null class." But of course the null-class exists (Bertrand Russell to the contrary notwithstanding), *in the same sense* in which any other class exists.

It is to be regretted that Couturat's paper, at least in this first part, is marred by these imperfections. In spite of the great amount of original work done in this field there exists, as far as I know, no other elementary exposition of this modern logic in English. It is to be hoped that these imperfections will be removed in a new edition of the volume.

In the second part of his paper, Couturat treats under the title "Methodology" problems which belong to the Study of the Structure of Systems, and to Critique of Cognition.[1] On the latter point Couturat briefly and admirably summarizes the results of the recent work in this field. His views on the Structure of Systems, however, though supported by good authority, seem to me strangely inconsistent. It is impossible to enter into detail here. I will merely illustrate my point by the following two quotations: "Thus all the scientific and objective contents of a theory are contained within its first notions, and in its axioms or postulates" (p. 186). This is a common enough, though wholly erroneous opinion. Contrast with it the following: "Definition, then, is an essential element of demonstration: for, indeed, how can we hope to establish anything whatever about a term, if not by taking account of its meaning, of its conceptual content? Now this content is furnished by the definition and by it alone; for it is forbidden to attribute to a notion any element which does not figure in its definition, *i. e.*, in its construction" (p. 183). Couturat seems to admit here, and rightly I believe, that definition furnishes *new content* to a deductive system. Yet this is denied, or at least ignored, in the previous quotation. Couturat's fundamental view of the nature of a deductive system is contained in a noteworthy passage on pp. 186–187 which but for lack of space I should quote in full. The idea of "the reciprocal interlacement of all the propositions" here stated seems to me very fundamental. Schroeder[2] referred to it; it forms the basis of Mrs. Ladd Franklin's

[1] For an explanation of these terms see my papers: "Studies in the Structure of Systems," especially the first: *Journal of Philosophy*, Vol. IX, No. 8.

[2] See *Algebra der Logik*, Vol. II, part 1, p. 55.

Doctrine of Histurgy;[1] and the recent work of mathematicians and logicians only tends to verify and amplify the divination of the earlier investigators.

In late years Couturat was mainly occupied with the fascinating problems of universal language, and as he was led to these problems through his logical work, it is fitting that his present paper should conclude (Chapter VI) with a discussion of the relation between logic and language. Much in the recent work in mathematical logic, prominently by the school of Peano, is guided by ideas similar to those prompting the more popular and utilitarian endeavors of universal language-builders. The logician who is able to express his propositions wholly in his own symbolism, as, *e. g.*, the authors of the *Principia Mathematica*, have almost, though not quite, succeeded in doing, has in so far invented, or used, a universal language, at least for his special field. But it is a language without lingua. How far the ideas set forth by Couturat are acceptable, I am unable to judge. But he pleads the cause of universal language strongly and impressively.

Frederigo Enriques sketches in his paper, "The Problem of Logic," the leading principles of a Theory of Knowledge which may be called *Critical Positivism* (p. 217). "The aim of Critical Positivism . . . is to carry out the programme as laid down in Kant's *Critique* . . . in a scientific spirit consonant with that in which it originated" (p. 239).

The first part treats of Logic as the "Science of Exact Thinking." Out of this very concise chapter I can mention only the following point. "Thought takes for its objects . . . things from the perceptible world . . . . But, in defining or drawing inferences from these things, it always presupposes *certain conditions*,[2] in virtue of which these data are taken as 'objects of thought'" (p. 218). It seems then, if we may so express it, that the conditions *transform* the ordinary *thing* into an *object of thought*. This is, according to Enriques, only one of four ways in which thought posits its object. But it seems to be the most important because it paves the way for the critical solution of the problem of general ideas (p. 234). And the idea of conditions which certain entities must satisfy in order to become objects of thought is fundamental in all ways in which thought posits its objects.

Much more original however than this "Logic as the Science of Exact Thinking" is the second part which treats of "Logic and

[1] See Mrs. Franklin's paper on Histurgy, read before the American Philosophical Association in Baltimore, 1908. A briefer form of it was published in the *Proceedings of the Heidelberg Congress of Philosophy*, 1908.

[2] Italics mine.

Reality." Its problem is: How is the application of logic possible? This problem is important whatever our theory of logic may be. The author investigates two problems, which are intimately related, namely: "1. . . . whether and how the immutability of logical objects implies the persistence of a corresponding something in the world of Reality. 2. Whether there is anything in Reality corresponding to general and abstract concepts" (p. 231). He presents, as a solution of the first, the Doctrine of Critical Positivism which is summed up in the following proposition: "(*a*) . . . the objects of logical thought are unchangeable. (*b*) . . . Reality itself is changeable, but . . . within the flux, things and relations can be distinguished which change so slowly that they may be treated as logical objects. (*c*) . . . the approximate correspondences established between logical objects and changing realities admit of progressive correction by the help of deduction and experimental verification, and . . . in this way new and stricter immutabilities can be arrived at" (p. 232). This seems to me admirable as far as it goes. The fundamental principles of logic are here considered as conditions, which certain entities, namely, the logical entities, satisfy; for them the properties which are deduced from the fundamental propositions are valid; and any entities which satisfy the fundamental conditions approximately, will also have approximately these further properties.

The solution of the second problem is perfectly analogous.

A further problem concerning the relation of 'Logic and Reality' is "to determine how the acquirement and extension of scientific knowledge takes place" (p. 236). It is treated under the title "The Problem of Methodology."

Attention is called to the rôle which hypothesis plays in induction. Enriques distinguishes between *implicit* and *explicit* hypotheses, and concerning these two he notes the following important points: "(*a*) Under artificially simplified conditions, the result of experiment may offer an affirmative or negative answer to the question formulated in the hypothesis, *when the implicit hypotheses have been correctly apprehended.* (*b*) More often, however, such results confirm or refute not a single hypothesis, but an inference which follows from a *system of hypotheses*" (pp. 237–238). "Implicit hypotheses must be regarded as the least variable element in our systems of knowledge. . . . *The confirmation of such implicit hypotheses does not depend on the success or failure of definite experiments, but upon the congruence of experimental results as a whole: the criterion of implicit hypotheses is the Axiom of Contradiction*" (p. 238).

To this it may be said that the tendency of all scientific work is to make the implicit hypotheses explicit as far as possible; that all hypotheses are to be judged, as far as their validity is concerned, by the same criteria, and that the Axiom of Contradiction is only one of these.[1]

I am impressed with the importance of the theories presented here, but the value of the author's work would have been enhanced, if he had not brushed aside too easily mathematical logic. "A new school of 'Logistic' or 'Mathematical Logic' has arisen. Its special object is the revision of the Aristotelian schemata" (p. 217). But the scope of Symbol-Logic, whatever it may have been in the beginning, has far outgrown "the revision of the Aristotelian schemata." Much of the work done by these mathematical logicians could have profitably been used in the present paper.

Benedetto Croce treats in his delightful brief paper with humor, paradox, and sarcasm, of the "Task of Logic." He will have nothing to do with the endeavors of the Logisticians. They are "in sorry case; they are like peddlers who carry around specious and glittering wares, crying them up to the public and advertising their utility for all sorts of purposes, but who fail to attract customers" (p. 200). Croce himself is not a customer. Mercy no! "The austerity of the new formulae frightens us" (*ibid.*).

Neither is he concerned with "those normative and formal logicians who, in prescribing norms, practically prepared the way for the more radical demands of the Logisticians themselves" (p. 201). For Formal Logic, "Descriptive Logic" as he prefers to call it (p. 201), as well as Logistic, "can, at best, but furnish us with convenient summaries, which are as useful for the memory as they are insignificant and uninforming for the understanding" (p. 201); whilst Croce's Logic "is essentially a *doctrine*, a *theory*, a *science* . . . it is a theory, entirely devoted to the task of inquiring into the nature of thought, as exemplified in science as a whole and in the particular sciences" (p. 200). Logic, Philosophical Logic, is a science, it is a true science, it is the only true science (p. 201), it is "the whole of philosophy" (p. 204). For "Logic as a special science is unthinkable and incomprehensible" (p. 203) and philosophy is an "unanalyzable unity" (p. 204). Logic is "the science of true science or of the philosophical concept. . . . It is the philosophy of Philosophy" (p. 209).

[1] *Cf.* my paper: "Critique of Cognition and Its Principles." *Journal of Philosophy*, Vol. VI, No. 11.

There is something whole-hearted about Croce's manner. He despises the specialist; he does not believe in the separation of problems: "We take up the cudgels here against the *separatists*" (p. 204). I must confess myself to be an ardent separatist and I heartily recommend all opponents to read Croce's essay; it is the best implicit argument *for* the separation of problems that I know. Logic, Philosophy (for the two are in some mysterious way the same) is indeed many queer things in Croce's view; it is not Poetry, as he rather reluctantly argues; but it is Religion. "We have assumed throughout that the identity of Religion and Philosophy has been both exhibited and recognized" (p. 210). It is also History: "Philosophy itself is History" (p. 211). And a certain aspect of philosophy is Metaphysics: "In this second sense Logic has rightly assumed, on occasion, the name of Metaphysic" (p. 215). I have not fully grasped the arguments by which these various propositions are established; nor am I vitally interested in trying to understand them. No doubt they are comforting to some souls.

In the first part of his paper, *The Transformation of The Concept of Consciousness in Modern Epistemology and its Bearing on Logic*, Nicolaj Lossikij develops an interesting concept of consciousness, which in the second part is applied to the problems of logic. "Consciousness is the sum-total of everything which stands in a certain unique Relation to the Ego. This relation is simple, and cannot therefore be described or defined by analysis into its elements. We can only indicate it by the following expression, which is metaphorical only, and must not be taken literally. Everything falls within the sphere of consciousness which the Ego 'has'" (p. 242). "According to this theory every fact in Reality with which *I am acquainted* is not merely a fact, it is also, owing to the circumstance that my Ego is connected with it by the relation of 'having-in-consciousness,' a content of consciousness; in other words, the Ego exercises towards it the *function* of becoming conscious" (*ibid.*).

Of this 'having' two kinds are distinguished, the first of which is designated as 'mine,' and the second as "given-to-me" (p. 247).

This new conception of consciousness entails, according to Lossikij, important modifications within the sphere of logic. The present paper however examines only a few of these. "In modern philosophical literature the doctrine that knowledge implies synthesis as well as analysis is widely held. Analysis is certainly an activity of the individual knowing. But whence comes synthesis?" (p. 249). According to the present theory "synthesis is given in the constitution of the object" (p. 249).

This leads to a new statement of the relation between subject and predicate: " . . . the judgment should be thrown into the form: 'Where S is , P necessarily is also.' The relation thus abstractly conceived must be called a relation of *functional dependence* . . . , in so far as we are dealing with combinations of elements . . . which lie outside the act of cognition; when, however, we are considering how far this same interconnection enters into the structure of the judgment or of the syllogism, it must be called a relation of *ground and consequent*" (p. 263).

These criticisms of the traditional theory of the relation of subject and predicate seem to me just, and the emphasis on the concept of the relation of functional dependence excellent. It should be extended; it plays too small a rôle in our usual theories of logic. The theory of truth which is based on this distinction between functional dependence on the one hand and ground and consequent on the other, seems to me open to criticism. But there is not room here to state my objections.

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Critical Realism: A Study of the Nature and Conditions of Knowledge. By ROY WOOD SELLARS. Chicago and New York, Rand McNally and Company, n.d.—Pp. x, 283.

The reader who takes up this volume, having his mind filled with the suggestions which current literature has caused to cluster about the word 'realism,' is likely to be disappointed; unless he is a convinced and satisfied realist, he will be happily disappointed. The emphasis of the title lies upon the word 'critical' rather than upon 'realism' and the onus of the criticism falls as much upon recent realism in this country and in England as upon idealism or pragmatism. I do not mean to suggest that the name realism is ill-chosen, for the author no doubt may properly be called a realist, but he is entirely frank in admitting his sympathy with some parts of idealism and pragmatism, and his purpose is avowedly to construct a theory of knowledge which shall do justice to both these positions as well as to realism. Indeed, he regards realism in its current form as having the same vices as idealism and shares with it little more than its most general conclusion, that there is knowledge of a non-mental reality, a conclusion at which he arrives, however, by another road.

"My thesis is, then, that idealism and realism have had essentially the same view of knowledge and that the large measure of sterility

which has accompanied philosophical controversy is due to this constant assumption that knowledge always involves the presence of the existent known in the field of experience" (p. vii). The criticism thus generally stated indicates the point of view of the book. It amounts in substance to the charge that no theory of knowledge has rigorously and definitively abandoned the notion that knowledge copies its object. Considering the hard usage which 'copying' has received for the last two centuries at the hands of critics of all schools, this is at first rather staggering. And indeed the author's way of introducing this sweeping criticism is unfortunate; at first sight he seems to be making a ridiculous claim to having discovered this principle. In this he is less than just to himself, for what he really means is quite different and much more significant. It amounts to saying that a vague and figurative view of knowledge has continued by its implications to affect thought on this subject long after its futility as a description of knowledge has been manifest to everyone. The author is making the perfectly sound point that knowledge cannot be conceived as apprehension or profitably studied at the level of perception alone. It is because realism has persistently taken knowledge at this level that the American realist describes knowledge as a relation between entities (pp. 138 ff.), and the English realist tries to find an awareness or a consciousness in perception distinct from what is perceived (pp. 111 ff.). In either case the assumption is that what knows, in order to know, must be the thing known, which may not inaptly be described as a remnant of the notion that an idea, if true, is like its object. Perhaps it is still more like Berkeley's argument that an idea literally is its object. Professor Sellars argues very plausibly that the modern realist has thus put himself at the idealist's mercy, because, so long as knowledge is viewed as apprehension, the indissoluble relation of subject and object is quite undeniable, whereas, upon the opposite assumption, the triad, subject, idea-object, physical existent, is at least not impossible (p. vii).

Accordingly, the first three chapters of the book are devoted to a recognition of, indeed an insistence upon, the subjective factor in experience. The first discusses and rejects the unreflective notion that the physical object itself is immediately perceived; the second shows the projection of the same 'natural' view into science; and the third shows how the subjective or personal aspect may be regarded as co-extensive with the whole of experience. It will thus be seen that the realism of this volume finds no difficulty in recognizing the uniqueness and privacy of the individual's experiences. The same

subject is continued in the two chapters following, which are devoted to an empirical analysis of the field of individual experience. Here the author points out an evolution from a primitive state of 'togetherness' in the course of which such fundamental distinctions as self and objects, mental and physical, are made. These are distinctions of a functional nature within experience; pure awareness and a unique cognitive relation are alike rejected. Moreover, because the distinction is made for different purposes, it is made in different ways, with the result that the mental is differently defined, according as it is contrasted with one or another non-mental (pp. 88 ff.). Since all experiences show variations of clearness due to attention, the whole field may broadly be called mental (p. 119).

With this large recognition of what is often considered to make either for idealism or pragmatism, the author goes on to his critical rejection of the former. The second of these critical chapters, on the "Insufficiency of Mental Pluralism," is the most effective bit of criticism in the book; the author shows that personal idealism, because of its inherent instability, must issue either in theism or absolutism. The preceding chapter on idealism in general is directed largely against idealism of a perceptive type, which insists mainly upon the correlativity of subject and object. Professor Sellars recognizes, indeed, that modern idealism has devoted itself largely to working out the concept of unity or system in experience, a project with which he appears to have much sympathy, but he would not admit that such idealism is of a radically different type from that founded by Berkeley. Whether he is right in this conclusion or not, his argument contains a quite indisputable measure of truth. Somewhat differently expressed, it amounts to this (pp. 143 ff.; 183 ff.): Idealism has retained a confusion which arose because of certain circumstances surrounding its historical origin. Kant's categories were proposed as a supplement to the *disjecta membra* of the English associational psychology and were therefore regarded as the peculiar contribution of the mind to experience. But any plausibility that this position may ever have had has long since disappeared; relations are no more mental than any other item of experience. What happened, however, was that Kant's new point of view was swamped in the old assumption that the mental was somehow more obvious than the physical, that only the mental can be known, since whatever is known must be literally present in the experience which knows it. But if the mind does not make experience with its categories, the older assumption that only mind is known may be rejected at the same time. "Thought is the movement of

readjustment and of creative construction in the continuous field of the individual's experience. . . . The main point to be stressed in contrast with the Kantian logic which I have in mind is the control of constructive thought by percepts and thus, indirectly, by the environment" (p. 146). There is no need that the environment should be literally present in experience if experience is objectively controlled. "To make the categories grow from the perceptual field and to continue responsible to it is to transfer to them the possibility of control by things-in-themselves. I shall endeavor to show that such a control exercised by things-in-themselves, when it is strengthened by experiment and by the necessity for motor adaptations, is a sufficient foundation for the degree of knowledge we claim to possess of the physical world" (pp. 149 f.). The belief in the possibility of such a knowledge of extra-experiential realities is the substance of the author's realism.

The three remaining chapters of the book are avowedly a development of the point of view thus generally established; in reality, however, constructive elaboration occupies less space here than the reader has been led to expect. The author has made the best of his case before he reaches this point. In short, 'realism' here as elsewhere does not seem to be the significant factor. There is an unnecessarily elaborate proof that subjective idealism has not been consistently solipsistic, undertaken to show that even idealism does not adhere consistently to the principle of the literal presence of the object known (Chapter VIII); while the discussion of the mind-body relation, which is introduced as a sort of test case, is really concerned with the very general question "Is Consciousness Alien to the Physical?" (Chapter IX), a subject which covers the whole development of modern philosophy. I am not able to see that the author here adds anything very substantial either to the clarity of his realism in particular or of philosophical problems in general. He points out the well-known difficulties involved in the thorough-going application of mechanical categories, but he does not appear to appreciate the extent to which the fate of modern science has been wrapped up in the use of these categories. It is one thing to point out the difficulties and quite another to tell what is to be done about it, in the light of a demand for knowledge of a kind which appears to be satisfied only with mechanism. Like the idealist and the pragmatist, each in his own manner, he finds in evolution a way out (pp. 233 ff.), but again he does not seem to appreciate the difficulties of a logical formulation of this principle, nor does he take account of the fact that the ulti-

mate satisfactoriness of evolution in biology is still a matter of doubt. What will be left of evolution as "a development of wholes which are not merely collections of units" after Mendelian theories of heredity have done their work is a question which it takes some hardihood to answer. Finally, his adoption of an empirical parallelism of mind and body (pp. 239 ff.) seems rather to shelve that problem than to solve it. To say that "Consciousness is the brain become conscious; it is a highly evolved part of reality flowering out into that unique and non-substantial variant which forms our experiencing" (pp. 244 f.), leaves the question in much the place where it was.

The ultimate doubt which remains in the reader's mind after he has finished Professor Sellars's book is whether even a critical realism affords any essentially new constructive point of view from which the problems of philosophy may be attacked. It does not appear to me that the author has developed such a point of view. The mere contention that objects exist which are known but not experienced is not really so important as it is assumed to be. I am not sure that either a pragmatist or an idealist would not admit this if he were allowed to make the necessary interpretations. Now absolute idealism has such a point of view, even though it may be inadequate,—the point of view of the Hegelian reconstruction of logical consistency. The pragmatist also has such a point of view, though this too may be insufficient,—the point of view of thought as an adaptive function of the organism in a complex and changing environment. A great variety of passages in Professor Sellars's book might be cited to show that his own point of view, in so far as it is constructive, is really that of pragmatism. (*Cf.*, for example, in addition to some sentences already quoted, pp. 83, 213, 236, 243.) His realism adds, as a sort of supplement, that the object really exists, though it is not itself an item of experience, but as a controlling factor this object is not 'external' when it functions as a determinant of truth. Surely the question is not so much the existence as the nature of this control. In fairness to Professor Sellars in this matter, it should be stated that he has in preparation a book on the categories which may put the question in a different light. In the meantime it must be admitted that critical realism represents a stage of philosophical sophistication not usually attained by recent realistic literature.

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Movement and Mental Imagery: Outlines of a Motor Theory of the Complexer Mental Processes. By MARGARET FLOY WASHBURN. Boston and New York, Houghton Mifflin Co., 1916.—Pp. xv, 252.

"From the point of view of scientific investigation no two subjects could present a stronger contrast than the two named in the title of this book. Movement is the ultimate fact of physical science. The measurement of the direction and velocity of movements is the most satisfactory achievement of science. . . . On the other hand, nothing could be less attractive to the scientific investigator with such an aim than the domain of mental imagery, the world of imaginary objects. Mental images are not only removed from general observation and open to direct study only by the individual who experiences them, but even he has no satisfactory way of measuring them and reducing them to mathematics." Nevertheless, the scientific investigator of mind may—as the author goes on to say in the Introduction—persist in "being curious about the 'inner aspect' of behavior and in believing that a man's thoughts are as legitimate objects for scientific study as his movements." If he does so persist, and if he also realizes "that it is through his movements that man takes his place in the rest of the order of nature, then the proper outcome of this twofold interest is an attempt to show that the whole of the inner life is correlated with and dependent upon bodily movement." While "this attempt is everywhere visible in the psychological theories of the past twenty years. . . . there still remain many phenomena connected with the complexer life of mind, the revival of past experiences and the construction of new thoughts and ideas, whose connection with motor processes has not been satisfactorily traced." This unestablished relation of the richer mental complexes to the movements of the body supplies the problem for the present serious and notable study.

Professor Washburn's doctrine of mind and organic movement has been sketched in previous articles. Now it is further elaborated and applied to the facts of imagery, association, action, and thought. It may be set forth in a few words.

Mind is intimately related to new combinations of simple movements innately provided; combinations organized during the life-time of the individual. These combinations are "movement systems," and a movement system is defined as "a combination of movements so linked together that the stimulus furnished by the actual performance of certain movements is required to bring about other movements." Systems are *static* (prolonged states of contraction and relaxation of muscle) and *phasic* (translations through space); and phasic systems

are *simultaneous* and *successive* (chap. i). Now *all* consciousness is related to movement. The author resolves the antithesis which she finds between those theories which have been based upon free movements and those based upon obstructed movements by supposing that "consciousness accompanies a certain ratio of excitation to inhibition in a motor discharge." Complete blocking and complete want of inhibition alike destroy, or fail to produce, conscious processes. Thus mind always involves the ratio *excitation: inhibition;* but change in either term of the ratio (more or less excitation, more or less inhibition) may change its coloring and its temper; thus strong excitation of motor response with considerable checking and delay accounts for attention, still stronger excitation and weaker checking for smooth and rapid thinking, while a still greater balance of excitation over inhibition is exemplified in automatized and habituated actions.

Of primary importance to the theory is the distinction between *full* and *tentative* movements. Tentative movements are weak contractions of muscle. The theory demands an abundance of these (chiefly human) movements, which arise from cortical (as distinguished from thalamic) excitations. They are of much greater importance to consciousness than the gross movements of "behavior." "Upon the occurrence of tentative movements and their combination into simultaneous and successive movement systems will be based the whole theory outlined, in this work, of the nervous processes underlying the inner life of the mind. All thoughts and mental images, all the contents of consciousness, rest not simply on delayed full motor response, externally visible, but on delays in the systems of tentative movements. When these systems run smoothly, we have 'unconscious thought'; when delays occur, we have 'sensations' and 'images.'"

One further consideration is necessary to the general exposition of the theory. It concerns the functional relations of "sensory" and "motor centers" and "pathways." A discharging motor pathway under partial inhibition drains all sensory pathways connected with it at low synaptic resistance. Thus consciousness arises. When now a sensory pathway is excited by a stimulus, sensation results, when excited from another—always a motor—source, the image or centrally excited sensation results. The introspective difference between the sensation and the image is due to the "general motor disturbance" which follows peripheral stimulation.

It is inevitable that a doctrine of movement systems should bear upon some problems with more cogency than upon others. Its

achievement with associative trains seems to the reviewer to be most remarkable, possibly because the facts there cited are most numerous and most tangled. Anyone one who has plowed through the literature from Müller and Schumann to the present year will appreciate the beauties of a conception which is able to set in order the conditions of impression, reproduction and recall, the nature of the memory after-image, the interplay of tendencies and dispositions, the laws of learning, and the mutations of imagery (chaps. v, vi, vii). Chapter v alone incorporates no fewer than thirty-six, and Chapter vi above forty, separate researches. If "perseveration" is overworked (the section seems to have been closed before Foster and De Camp appeared), and if the difference between the memory after-image and the "revived" image is exaggerated, the clarity and the thoroughness of the whole accomplishment can scarcely be too heartily praised. The empirical temper of the work is best illustrated in the treatment of Problem or Purpose (chap. viii) and of Imageless Processes (chap. x). The temptation to forsake the observational facts and to speculate upon mental activities and powers has seldom been resisted here even by recent writers from the laboratory. Professor Washburn brings the *Aufgabe* to earth in the "activity attitude," which she attaches to a static movement system, and she avoids the vagaries of the imageless thinkers, connecting, through the medium of kinaesthetic fusions, the attitude and the 'thought element' with sensation.

The value of the book rests less upon the form of the theory propounded (there has been no dearth of 'motor' theories since Ribot and Baldwin set the fashion), than upon the careful and precise attempt to interpret the psychological facts at hand in the light of a clearly formulated doctrine of bodily conditions. So the literature has been combed over and the facts of perception, imagery, after-image, associative, determining, and perseverative tendencies, meaning, attention, the Aufgabe, judgment, reasoning, creative thinking, imageless thought, attitudes, and dissociation have been marshalled for a candid explanation in terms of tentative movement systems.

The volume demands close reading. Every line calls for scrutiny and every section for backward and forward reference. In its difficulty, however, lies its principal virtue. To declare a conviction is easy, *e. g.*, to affirm that consciousness is always 'motor,' or that the brain is obviously a funnel for pouring energy into the muscles, or that it is evidently a system of synaptic sluiceways incapable of harboring such an *Unding* as consciousness. But to face the whole array of facts with courage and candor and to explain and reconcile them, bit

by bit, in the light of a fairly simple hypothesis is by no means easy. This task the book essays. The magnitude of it is suggested by the appended bibliography of one hundred and sixty-two titles, all of which—and twice as many works besides—have been assimilated to the main problem. The volume virtually includes an outline of psychology which is rendered coherent and consistent by means of a fundamental principle of explanation. In its systematic command of facts it reminds the reader of Sherrington's *Integrative Action* and in its objective march through successive topics of Stumpf's classical *Tonpsychologie*.

It will, of course, be objected that consistent interpretation in terms of movement systems does not substantiate the existence of these systems as forming the essential basis of mind. It will be said that motor organization is rather a sequel of cerebral organization than a cause, that a sufficient variety and delicacy among tentative movements is an hypothesis that strains the facts at hand; that non-skeletal, static systems, that should carry purpose and explain determining tendencies and strong attention, are fanciful, and that the neurologist's knowledge does not preclude a real *central* organization which should account for association and attention. But, after all, such objections as these will acquire point and merit, in the face of the present performance, only when they have been welded together into a body of doctrine as coherent and useful as that presented in *Movement and Mental Imagery*. Furthermore, such criticism is really disarmed by the author herself when she declares that "nothing could be less dogmatic than the spirit in which this sketch of a motor theory of mental processes is put forward. There are grave dangers attending the attempt to form a complex and self-consistent theory where an appeal to fact is not possible at every step; and one of the chief dangers is that of taking self-consistency as equivalent to truth, of thinking that a subordinate hypothesis, for instance, must be true because it fits nicely with the rest of the theory, even though the whole structure be hung up in the air."

Psychology will, as it seems to the present writer, immediately and especially profit from Professor Washburn's book in two ways: First, by its empirical consideration of the problem of thinking, which had in spite of the enormous activity of the last decade, almost reached an *impasse;* and secondly, by its brilliant contribution to the constitution or organization of mind, an aspect which has been neglected alike by the analyst, the student of organic performance, and the inventor of mental activities and powers.

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NOTICES OF NEW BOOKS.

The Next Step in Democracy. By R. W. SELLARS. New York, The Macmillan Company, 1916.—pp. 275.

Socialism may be regarded either as an economic theory pure and simple or as a large movement of life. As the former, it is a tolerably well-defined description of the economic stages through which society passes. The emphasis is upon what, in economic fact, has been and is and inevitably is to be. There is no emphasis upon what ought to be. To many of us, such socialism has become increasingly unsatisfactory. It smacks too much of older dogmatic certitudes; it builds itself too perilously out of abstract economic absolutes; it is altogether too little conscious of the pregnant confusions and the creative uncertainties of life; above all, it makes no confident call upon the moral enthusiasms of men. It is for these reasons, doubtless, that to many of us, sympathetic as we have been with the fundamental insight of Marx, socialism has of necessity come to mean something very different from a mere description of the fated march of Economic Fact. It has come to mean a large movement of life, more particularly a movement of moral revolt against the regnant complacencies. It has come to mean an indignant rebuke, on the one hand, to the middle class treatment of the 'under dog,' and, on the other hand, to the middle class's treatment of itself. It has come to mean in short a plea for a finer justice, a more compassionate humanity, a plea likewise for a more intelligent marshalling of our human resources and for a more drastic elimination of the social crudities and stupidities.

The prevalent confusion as to what, precisely, socialism signifies arises out of this duality of meaning that has grown up within the socialist camp itself. As a matter of fact, socialism, particularly in America, is entering upon a new period of its history. America was never over-cordial to the socialism 'made in Germany.' There was too much that was autocratic about the Marxian doctrine; too much that reminded us of the relentlessness of a cosmic drill-master. If, indeed, we accepted Marxianism for the time being, it was for want of something better. The doctrine was, in a way, a vent for our outraged feelings; it gave fighting edge to our swords. Yet we never felt quite comfortable with it; it wasn't fashioned after the pattern of ourselves. Of late, America has been developing a native type of social self-consciousness. Through the stress of our more recent problems, we have been growing steadily into a consciousness of the cruel ineptitude of our middle class judgments; and we have been turning in this direction and in that for light out of our darkness, with the result that a new movement of life is beginning among us, a movement that is economic, political, and social; a movement of revolt that is at the same time a movement of constructive purpose; a movement experi-

mental, pragmatic; above all, a movement instinct with the moral enthusiasm that is fundamental in America at its best.

It is this large, forward-looking movement of modern life that Dr. Sellars describes in his book. The book apparently is a treatise on socialism; but it is on socialism of this broader kind. "Socialism is the democratic movement whose purpose it is to secure an *economic organization* which will give the maximum possible at any time of justice and liberty." That definition will fit any serious minded American progressive. Indeed the criticism that will be made upon Dr. Sellars's book by the dyed-in-the-wool Marxian will be that it isn't a book on socialism at all but only a more or less sugar-coated account of bourgeois progressivism. And there is some justification of this criticism from the Marxian point of view, for the reason that Dr. Sellars's handling of the great central theme of socialistic theory—capitalism—is exceedingly gingerly. Indeed the word does not even appear in the index. Nor is there any clear-cut discussion of such problems as banking, investment, interest, etc. By reason of this the chapter on Some Principles of Pecuniary Reward is vague and unsatisfactory.

We should indeed have welcomed a more penetrating approach to these central economic matters on the part of the author; and yet we must not fail to be grateful for the kind of thing that he has done. He has, as a matter of fact, pioneered in the above mentioned new development of American socialism. He has broadened socialism's foundations. He has linked it up with our modern ethical enthusiasms. He has exorcised its old Hegelian spirit of absolutism and brought to it the fresher American spirit of trial and error. Above all he has made it not the antagonist but the ally—the somewhat more far-seeing ally—of American progressivism. This is sufficiently clear from the author's enumeration of what socialism is and what it is not. Socialism (1) is not the same as anarchism; (2) is not identifiable with syndicalism as such, though it welcomes certain tendencies contained in syndicalism; (3) is not bureaucratic; (4) is not communism. Socialism, in its constructive purpose, hopes (1) to reduce the disorder characteristic of the market as at present organized; (2) to lessen the waste characteristic of present methods; (3) to eliminate all degrees of competition that are obviously antisocial in their consequences; (4) to eliminate unmerited poverty; (5) to tap new energies which are now latent and are not elicited by our social arrangements; (6) to make labor-saving devices really saving of labor; (7) to procure a fair degree of leisure for each individual; (8) to achieve a better distribution of human costs; (9) to bring in its wake a society, healthier physically and morally, and one ever more capable of developing sane and progressive institutions.

All these are the hopes of forward looking Americans. The latter may, indeed, make wry faces at having their hopes classed as socialistic; but when they read Dr. Sellars's book and note his fine freedom from most of the mordant elements of the older socialism, they may be less disturbed in spirit. As one reads the book, indeed, one wonders whether socialism is not dying to its doctrinal separateness and living more broadly and richly into the democratic life of the day.

One thing assuredly Dr. Sellars has done for us. He has broken into the sedate circle of philosophy with this *enfant terrible* of our modern thought. He has, we must confess, dressed the child a little over sweetly and trained it to too melting a tone. But that matters little. The terrible child is in. May it now energize within the shocked circle of the elders!

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Artists and Thinkers. By LOUIS WILLIAM FLACCUS. New York, Longmans Green, and Company, 1916.—pp. 200.

It is Pascal, as I recall, who defines metaphysics as "une poésie sophistiquée"; a countryman of Pascal, G. Bréton, writing on the Greek philosophical poets, says "la métaphysique est l'âme de toute poésie." In these contrasting characterizations we have set for us, not only a relation of the two forms of expression, but the problem of the nature of their community.

It is this problem which Professor Flaccus makes the text, as it were, of his group of essays entitled *Artists and Thinkers.* "A philosopher must have his problem," he says, "—a trade weakness . . . but one in which I must confess a share." And he proceeds to state his problem in giving the program of his book: "I have taken my material from the borderland of art and philosophy. I have chosen three artists—Rodin, Wagner, Maeterlinck—who have achieved greatness in such widely different arts as sculpture, music, and the drama; and three thinkers—Tolstoy, Hegel, and Nietzsche—who are quite unlike and fairly representative. All these men had much to say on art; they have discussed special points and formulated general theories. Many of these theories are fanciful, unsound, clumsy; these I have given as well as others which show remarkable insight. Incidentally I may have touched on the truth of a theory or weighed it historically, but the main interest has been elsewhere: in the problem of the interplay of art and philosophy; in tracing the Thinker in the Artist and the Artist in the Thinker."

Regretfully it must be stated that the expectations raised by Professor Flaccus's 'main interest' are disappointed in the sequel. The problem of tracing "the thinker in the artist and the artist in the thinker" is certainly a fascinating one, and should be rich in substance if carried through with that combination of judicious reserve and lively sympathy which marks your biographer of genius. For the problem is essentially a biographical one; it implies an intimate study of the human individual who may happen to be an artist or a thinker, with a view to showing his art or his thought as the necessary and central expression of his personality,—such a study, for example, as Plato gives us of the man Socrates. Professor Flaccus nowhere approaches his subjects from such a point of view; rather he gives us, in each case, a circumferential survey of the ideas (on the theme of art) with which his exemplars have publicly surrounded themselves,—so that his essays convey the general impression of studied interviews, too careful to be counted mere journalism, yet never penetrating to the artist behind the art or the thinker behind the thought.

One cannot properly call this superficial: Professor Flaccus is a thinker interested in thoughts, a critic interested in art. But it is disappointing, when the appetite had been whetted by a very stimulating introduction for studies of expressive *agents* (who are always worth knowing), to find oneself groping about amid thought-agglomerations that only vaguely suggest their parent minds. "There is many an artist," says Professor Flaccus, "with a devil-may-care stroke to his brush or pen and a sincere contempt for the tribe of thinkers, who is in his heart of hearts, quite unknown to himself, a philosopher, and a poor one at that, with a vague use of such terms as ideal, imitation, character, milieu, and what not. And the philosopher at his best and at his worst is often a poet." This is excellent truth, and the pity of it is that an author who can see and say so well as Professor Flaccus shows that he can did not give us a subtle and vivid portrait of just one artist or just one thinker in place of his half dozen sketches which, honest and often clever as they are, hover on the near borders of the journalese.

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Bergson and Religion. By LUCIUS HOPKINS MILLER. New York, Henry Holt and Company, 1916.—pp. ix, 286.

It is not the author's purpose to define the fundamentals either of religion or of the philosophy of Bergson. Nor does he undertake to estimate the value of the Bergsonian point of view. His aim is rather to pass in review "the outstanding Bergsonian emphases for the sake of drawing any possible inferences in a religious direction, but with special reference, perhaps, to Christianity" (p. 26). "The problem may be put thus: If Bergson's doctrine be completely accepted, what results for religion?" (p. v).

The main drift of the argument may be gathered from a general statement of the principal conclusions. In the first place, the author thinks that the Bergsonian theory of knowledge has implications of basic importance for religion. This theory, by emphasizing the rights of intuition against intelligence, protests against the abuse of the principle of scientific determinism, and warrants the conclusion that religion is in some sense independent of science. This destroys the basis of agnosticism concerning religion and leaves room for the objects of faith beyond the realm of reason. This faith, however, is not to be identified with blind credulity, since Bergson insists that intuition is subject to the test of rationality. Again, the doctrine of the Vital Impetus has a direct bearing upon the nature of the conception of God. The author holds that the Vital Impetus, as Bergson conceives it, is essentially a theistic conception and can in principle be harmonized even with the Christian idea of God. But he also points out the obvious fact that, if this Bergsonian doctrine be accepted in good faith, a partial revision of the orthodox view of God and of revelation will prove to be inevitable, since the process of creative evolution leaves open the possibility of other incarnations and revelations of God and certainly implies a growing and changing deity. But a changing

deity need not be irresponsible, not subject to chance, if its development is teleological, and such, the author maintains—though with questionable right—is Bergson's view of creative evolution. Once more, Bergson's insistence upon the primacy of spirit is looked at as of supreme importance for religion. It not only leaves room for the existence of the soul; it establishes a presupposition in its favor. And in this age of the soulless psychology, when agnosticism threatens to undermine in the name of science one fundamental tenet of the religious consciousness, the religious value of such a position can, in the opinion of the author, hardly be overestimated. Again, the Bergsonian conception of freedom is held to be of extreme significance for religion, because it implicates three basic religious conceptions: (*a*) Kinship with God—freedom through participation in the Vital Impetus; (*b*) communion—which is possible only between free personalities; and (*c*) coöperation between man and God. Finally, Bergson is supposed to justify faith in the immortality of the soul through his doctrine that the soul is independent of any physical basis and that the individual is of primary value.

The reader's estimate of this book will be determined largely by the views he holds concerning the relation that exists between philosophy and religion. This the author himself recognizes. Those who hold the conviction that philosophy is logically prior to religion, like those who hold the contrary view, will find little in the argument to interest them. Those who believe, with the author, that religion and philosophy "move in different spheres" and yet are not wholly independent of each other will find the discussion more worth their while. The book is well written, and many of the problems of religion are included in its scope. One lays the book aside, however, with a feeling of dissatisfaction. And that feeling arises from the fact that the author makes no effort either to state the basic problems of religion or to determine whether the views he attributes to Bergson can consistently be held by him. Any inquiry concerning the religious implications of a system of thought would seem to rest upon some conception, either expressed or implied, as to what doctrines are essential to religion and what the system in question really is; these problems are logically fundamental. It may, perhaps, be impractical in a short discussion to deal with these problems at length; but certainly they should be answered explicitly, even if dogmatically. Implicit answers to them are apt to lead, as in the present case, to confusion.

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La Philosophie de Bergson, exposé et critique. Par HARALD HÖFFDING. Traduit d'après l'édition danoise avec un avant-propos par Jacques de Coussange, suivi d'une lettre de M. Henri Bergson a l'auteur. Paris, Félix Alcan, 1916. —pp. ix, 165.

The purpose of this little volume is to disentangle and weigh the basic principles of the Bergsonian philosophy. The scope of the discussion is fairly definitely indicated by the several chapter headings: Le problème de la phi-

losophie; L'intuition; Psychologie et physiologie; La philosophie de l'évolution; La psychologie de la volunté et du rire; Essai de métaphysique. The exposition of Bergson's views is very fair, as Bergson himself admits (p. 157); and the criticism is, as one would naturally expect, searching and suggestive.

The doctrine which the critic finds basic and which he, consequently, devotes most attention to, is the doctrine of intuition. He discovers that there are really two very different processes which may be meant by the term intuition, namely, intuition which results directly from the work of thought, from analysis and reasoned experience, and intuition which is immediately given in direct experience and which secures its results wholly in isolation from any sort of intellectual activity; and he accuses his author of having failed to differentiate these radically different processes from each other. "C'eût été d'un immense avantage, au point de vue de la clarté, si M. Bergson s'était exprimé d'une façon plus précise et plus déterminée au sujet du rapport qu'il y a entre l'intuition, condition nécessaire à tout travail psychique (ou qui plutôt est son premier résultat) et l'intuition qui devrait constituer l'apogée et la conclusion du travail de la pensée comme étant l'union suprême de l'instinct et de l'intelligence. M. Bergson emploie le même mot pour les deux choses, ce qui doit fatalement causer une certain confusion" (p. 51). To my mind, the critic has here put his finger on the fatal weakness of the new philosophy. The alternative is clear: Either subjectivity or an intuition which involves the work of the intellect. Bergson ultimately, of course, is forced to accept the latter. "La méthode de M. Bergson n'est pas uniquement intuitive; l'intuition n'est que le premier pas, l'analogie doit faire les suivants" (p. 137). Intuition, therefore, is not ultra-intellectual—certainly *metaphysical* intuition as opposed to *psychological* (p. 63); and M. Bergson has failed to provide us with a novel metaphysical method. In his letter to his critic Bergson has tried to answer this criticism by emphasizing once again the distinction between 'une multiplicité de pénétration réciproque' and 'une multiplicité numérique' (p. 160). One can, however, legitimately raise the question whether such an answer really meets the issue or evades it.

There are other difficulties, more or less directly connected with this basic one, which the critic points out with telling effect. According to Bergson, there is only a difference of degree between perceptions of matter and matter itself, between sensation and movement, since perception appertains 'to the materiality of our existence' and since everything in the material world is movement (pp. 67 ff.). But how can movement be conscious of movement? Bergson really escapes the difficulty by resting in a false abstraction; he draws a distinction in kind, not in degree, between sensation and memory, separating memory wholly from the material. Again, there is more of poetry than of science in the conception of the *élan vital* and its struggle with the forces of matter. The Bergsonian theory of the will is confused by the sharp opposition which he places between memory and action, the former being the very essence of mind and the latter being a sort of *tertium quid* between mind and matter. And, finally, Bergson's conception of the comic, which involves the doctrine

of the essential disparity between mechanism and personality, between the static and the dynamic in life, rests upon an incomplete analysis of the facts: "M. Bergson n'a parlé que du rire de la moquerie; il a négligé le rire de l'humour" (p. 125).

Bergson's importance in the field of descriptive psychology Höffding does not challenge; the Bergsonian metaphysics, however, in the opinion of the critic, stands in need of rather serious revision. With this position the present writer heartily agrees. And he also believes that this little volume suggests many of the lines, certainly the principal line, along which the revision must be carried out.

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Freedom and Purpose. An Interpretation of the Psychology of Spinoza. By JAMES H. DUNHAM. Princeton, N. J. and Lancaster, Pa., Psychological Review Company, 1916.—pp. 126.

The purpose of this study is to restate Spinoza's doctrine of freedom in terms of modern psychology. What Spinoza calls the bondage of man is interpreted as man in so far as he is mechanism or man from the point of view of structure, and the freedom of man is said to consist in his fulfillment of function. There is no conflict between the mechanical and teleological descriptions when they are rationally given. As a part of the whole of nature man is powerless to oppose natural law, insignificant in comparison with the rest of nature, and destined to ultimate destruction; as a "system that has the power of adapting means to an end" (p. 35) he is free. The kind and degree of freedom enjoyed by an individual depend on his nature, his nature being the totality of his tendencies, those which he has in common with all organisms, the specifically human impulses, and those which express the better part of the self, the altruistic and religious impulses.

In view of the fact that Spinoza has always appealed to those who are deeply interested in the practical problem of human perfection as well as to technical philosophers, it is gratifying to find a scholar discussing the significance of Spinozism for human life and neglecting or minimizing its unfruitful abstractions. His sympathetic appreciation of Spinoza's insight leads him to attribute to the early rationalist a concrete and modern attitude throughout. For example, he makes little of Spinoza's explicit denial of a theory of ends, realizing that this by no means commits Spinoza to thorough-going mechanism, and he makes much of the true teleology implied in the theory of the developing personality. He realizes also that the apparent loss of individuality in Substance is supplemented for Spinoza by the possibility of the individual's achievement of a universal point of view. At times, to be sure, one wonders whether Spinoza would recognize the views ascribed to him, as, for example, the notion that "the mind of humanity is . . . a definite consciousness growing ever more clear with the progress of reflective civilization" (p. 79), or that life after death correctly understood is man's "spiritual power in contemporary

affairs or among generations unborn" (p. 119). The author anticipated this criticism, however, by admitting that "it is extremely hazardous to project the feelings and methods of one age into the mental habits of earlier thinkers" (preface). But the possibility of a more vital objection seems not to have occurred to him, namely, that quite apart from the question of age the method of the functional psychologist is scarcely adequate to represent the ethical philosophy in question. For the functionalist the key to the understanding of freedom is man's instinctive pursuit of ends. He begins with the simplest types of impulse, such as the purely reflexive acts of the infant, and follows man to the point where he dwells serenely alone "bowed in awe before the mystery of cosmic power" (p. iii). Despite the great difference in the grade of freedom "the intellect is free in precisely the same way as any other organic impulse; it is free to realize its purpose" (p. 81). The method of the functionalist seems to be the observation of behavior from without as one observes the behavior of animals. Now why this method consistently pursued might not issue in a Nietzschean philosophy it is difficult to see. But it does not. "The difference between end-in-view for man and end for animal is abysmal" (p. 90). There is a "*real* self" and a "*unique* purpose" distinct from and at times antagonistic to the self and the purpose of the natural man. How the naturalistic method shades into a more idealistic one is illustrated in the following passage: "How are we to discover the teleological value of an act? The answer is, By its effect on behavior. The rule is inflexible, the same for all species. How much did the act increase or diminish the power of the organism? Did it produce pleasure or pain? Since man's unique purpose is intellectual, we ask: What was the state of mind after this perception or that argument? Was his body of knowledge enlarged? Was analytical insight quickened? Is he better able to shape his conduct by the laws of universal necessity?" (p. 55). It is difficult to find that principle on the basis of which the author distinguishes the organic impulses into higher and lower. One feels that strictly he is not entitled to the distinction any more than the consistent Utilitarian is entitled to kinds of pleasure. It is not surprising to find hints of perplexity as the functionalist follows man's rise to moral perfection. "Here by a process *that eludes our grasp* he (man) enters the domain of intelligent reflection, having passed beyond the bounds of organic appetition" (p. 73, italics mine). "In the case of man, when a wholly new purpose appears the office of consciousness becomes exceedingly complex, and *at times baffles understanding. Nevertheless, we are persuaded* that its business is to express the activity of the organic life by means of a self-discriminating personality" (pp. 112, 113, italics mine). The secret of the author's embarrassment may be found, I think, in his entire neglect of Spinoza's essentially logical point of view. It is true that Spinoza defines essence as the endeavor to preserve one's being and asserts all things to be useful which are in harmony with one's nature, but essence and nature are for Spinoza members of an eternal order to be apprehended through reason and not objects of sense-perception, that is, they are principles within man, and not the totality of his impulses. I doubt whether

it is representative of Spinoza to say that an infant's cry of pain is a free act in any degree whatsoever (see p. 41). Intelligence in the broad sense of the term rather than tendency seems to explain Spinozistic freedom, and for this reason Mr. Joachim, to whom Mr. Dunham expresses his indebtedness, is better fitted on account of his own idealistic and logical point of view to translate the philosophy of Spinoza into terms of modern philosophy.

KATHERINE E. GILBERT.

Man an Adaptive Mechanism. By GEORGE W. CRILE. New York, The Macmillan Company, 1916.—pp. xvi, 387.

Most investigators into the nature of life have worked with it in its simpler manifestations. Dr. Crile argues for the mechanistic interpretation of *man*, and uses evidence from the study of man. A surgeon and medical investigator of great powers and definite achievements, he erects into a general philosophic position his working hypothesis in attacking his own problems, and his results are his arguments. The character and strength of his appeal to the reader will depend much upon the latter's estimate of the force and relevancy of such logic in such a cause. If disposed to regard scientific creeds as merely such hypotheses, to be weighed by their utility, he will find the reasoning conclusive—unless perchance he happens to be concerned with different problems, where the particular hypothesis seems less serviceable. Right here, perhaps, is the proverbial 'rub.' Though no one can well be indifferent to the problems of preventive medicine, it is possible that there are other questions in the domain of human life which we should like also to ask. Thus there may still be ground for pause before accepting the adaptive mechanism view of man as the only, and universally sufficient, interpretation. But the author's interest is naturally in his own problems, and from his own standpoint we may survey his principal conclusions.

Life is a physico-chemical process; the Darwinian terminology relative to adaptation is used 'for convenience,' but with the stipulation that the notion of 'struggle' must be eliminated. The "old, arbitrary division of organic processes into 'physical' and 'psychical'" is also repudiated,—by placing all in the first division. The problem of consciousness is thus side-tracked rather than solved. The human body is an energy transforming machine, of which the essential parts are the brain, adrenals, liver, thyroid and muscles,—the "kinetic System." The initial spark comes from the brain; the adrenals contribute a secretion which mobilizes the parts for the respective functions and makes the energy transformation possible; the liver is the chief fabricator and storehouse of the fuel, and plays a large rôle in the neutralization of the acid end products of the change for elimination; the muscles are the motor, proper, and the thyroid the organ of speed control.

The foundation for this general view is laid in Dr. Crile's famous researches into surgical shock. Thousands of experiments were conducted on the physical nature of fear and pain and their effects in exhausting the tissues of the organs of the kinetic system. It was found that ordinary inhalation

anaesthesia does not prevent or reduce these destructive effects, and that a large proportion of deaths from operations are due to such tissue (especially brain) exhaustion from trauma. By developing a special operative technique, including the substitution of nitrous-oxide oxygen for ether, the use of suggestion (anociation) and sedatives, and especially by blocking the nerve paths from the cutting point to the brain by means of local anaesthesia, Dr. Crile and his staff greatly reduced mortality and unpleasant after-effects from many kinds of operations. (The emphasis on suggestion is somewhat striking, though not necessarily inconsistent with the general viewpoint).

The kinetic theory also throws light upon the nature and treatment of the degenerative diseases, such as Graves's disease, Bright's disease, etc., essentially phenomena of breakdown from excessive activation. Many interesting applications of the theory are made to other vital problems, such as growth, the effects of drugs, emotional expression, the cause of death, etc. Mention should be made of the numerous remarkable illustrations from photomicrographs of histological preparations. Though the work is distinctly one to be read through rather than used for reference, it is provided with a very complete index.

F. H. KNIGHT.

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Artificial Parthenogenesis and Fertilization. By JACQUES LOEB. Chicago, The University of Chicago Press, 1913.—pp. viii, 312.

The author here gives to the public a revision by himself of the English translation of his German work, *Die chemische Entwicklungserregung des tierischen Eies*, published in 1909. The book includes a very full history to date of the investigations in this field, in which the author has taken so large a part, a description of the leading experiments, and a discussion of the conclusions which seem deducible from them as to the nature of the physico-chemical processes underlying (or constituting) vital changes. The mechanistic view of life is assumed throughout, rather than specifically argued for. The 'general reader' will find both a more comprehensive discussion of the author's general position in biology, and a more satisfactory presentation of the problems and achieved results in this particular field, in Dr. Loeb's earlier book on *The Mechanistic Conception of Life.*

The conclusions regarded as established, mainly by Dr. Loeb's own investigations into the fertilization of sea-urchin eggs, are briefly as follows: The action of the spermatozöon on the egg is of two distinct and separable kinds, the stimulation of its development, and the transmission to it of the paternal hereditary characters. Only the first of these has been successfully investigated. The action causing the development of the egg is again accomplished by two agencies whose effects have been experimentally separated. The first causes the formation of the 'fertilization membrane,' which seems to be the essential impulse to segmentation. This action alone leaves the egg sickly, so that it dies and disintegrates in a short time. To secure normal development, a second treatment is necessary, apparently to protect or immunize the

egg against some destructive effect of the developmental process itself. In artificial parthenogenesis, the first of these results, the formation of the fertilization membrane, is accomplished by treating the egg with some of the lower monobasic fatty acids, or with extract of blood, tissue, or sperm *from some other species*, or with various chemical reagents. The common quality of these and basis of their efficacy seems to be a solvent action (cytolysis) on the cortical layer of the egg, probably fatty or lipoid in nature, rendering it more permeable to water. The second or immunizing action may be secured in two ways; first, immersion in a 'hypertonic' solution (more concentrated than sea water and with higher osmotic pressure) followed by transfer to the normal medium; and second, through the inhibition of development for several hours by deprivation of oxygen or treatment with a cyanide. In natural fertilization the two effects are apparently produced by different specific substances in the spermatozöon, both entirely distinct from the substances which transmit the paternal characters. The nature of the immunizing action, like that of the deleterious effects of the oxidations against which the egg must be protected, is unknown.

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The following books also have been received:

Advertising and its Mental Laws. By HENRY FOSTER ADAMS. New York, The Macmillan Company, 1916.—pp. 333. $1.50.

The Long Road of Woman's Memory. By JANE ADDAMS. New York, The Macmillan Company, 1916.—pp. xv, 168. $1.25.

A History of Mediaeval Jewish Philosophy. By ISAAC HUSIK. New York, The Macmillan Company, 1916.—pp. ix, 462. $3.00.

The Psychology of The Great War. By GUSTAVE LE BON. New York, The Macmillan Company, 1916.—$3.00.

The Spiritual Interpretation of History. By SHAILER MATHEWS. Cambridge, Harvard University Press, 1916.—pp. vi, 227. $1.50.

The Problem of Personality. By ERNEST NORTHCROFT MERRINGTON. London, Macmillan and Co., 1916.—pp. 223.

The Fundamentals of Psychology. By W. B. PILLSBURY. New York, The Macmillan Company, 1916.—pp. vii, 562. $2.00.

The Hope of the Great Community. By JOSIAH ROYCE. New York, The Macmillan Company, 1916.—pp. v, 136. $1.00.

Group Theories of Religion and the Individual. By CLEMENT C. J. WEBB. New York, The Macmillan Company, 1916.—pp. 207. $1.75.

Mechanisms of Character Formation. By WILLIAM A. WHITE. New York, The Macmillan Company, 1916.—$1.75.

Elements of Folk Psychology. By PROFESSOR W. WUNDT. Translated by EDWARD LEROY SCHAUB. New York, The Macmillan Company, 1916. —$3.75.

La Providence et le Bonheur D'après Bossuet et Joseph de Maistre. Par LOUIS ARNOULD. Paris, Société Française D'Imprimerie et de Librairie, 1917. — pp. xx, 349. 3 fr. 50.

SUMMARIES OF ARTICLES.

[ABBREVIATIONS.—*Am. J. Ps.* = *The American Journal of Psychology*; *Ar. de Ps.* = *Archives de Psychologie*; *Ar. f. G. Ph.* = *Archiv für Geschichte der Philosophie*; *Ar. f. sys. Ph.* = *Archiv für systematische Philosophie*; *Br. J. Ps.* = *The British Journal of Psychology*; *Int. J. E.* = *International Journal of Ethics*; *J. of Ph., Psy., and Sci. Meth.* = *The Journal of Philosophy, Psychology, and Scientific Methods*; *J. de Psych.* = *Journal de Psychologie*; *Psych. Bul.* = *Psychological Bulletin*; *Psych. Rev.* = *Psychological Review*; *Rev. de Mét.* = *Revue de Métaphysique et de Morale*; *Rev. Nèo-Sc.* = *Revue Nèo-Scolastique*; *Rev. Ph.* = *Revue Philosophique*; *Rev. de Ph.* = *Revue de Philosophie*; *R. d. Fil.* = *Rivista di Filosofia*; *V. f. w. Ph.* = *Vierteljahrsschrift für wissenschaftliche Philosophie*; *Z. f. Ph. u. ph. Kr.* = *Zeitschrift für Philosophie und philosophische Kritik*; *Z. f. Psych.* = *Zeitschrift für Psychologie und Physiologie der Sinnesorgane, I. Abtl.: Zeitschrift für Psychologie.* —Other titles are self-explanatory.]

La théorie relationniste de l'espace. A. N. WHITEHEAD. Rev. de. Mét., XXIII, 3, 423–454.

Four distinct meanings are attached to the word 'space.' We have first the *immediately apparent space* of perceived objects, which differs with different subjects. If we accept the relationist theory of space, then apparent space is only a complex of certain relations between apparent objects. The space perceived by A, being the relation between the objects he perceives, differs from the space perceived by B, which is the relation between the objects he perceives. We must distinguish from immediately apparent space, *complete apparent space*, which is the total space of a complete world of apparent objects no longer referred exclusively to a perceiving subject. This means that the immediately apparent spaces are combined into a unique world; and that the immediately apparent spaces are completed by the spaces which could appear to hypothetical subjects. The third type of space is *physical space*, the space of a hypothetical world, the same for all, of which the objects exactly correspond to our sensations. This world is a hypothetical logical construction. The objects in our apparent space are directly correlated, not with the objects of the physical world, but physical events; hence all analysis replaces the fluid, changing, apparent objects by permanent and stable objects, molecules, atoms, and electrons. The fourth use of 'space' refers to *abstract geometrical space*. Geometry, as mathematics, is abstract and general. In physical space there are conceived to be molecules and electrons, which act on each other, either directly or indirectly. In order to see the value of a minute analysis of our ideas of spatial relations, we must consider three axioms, which govern thought on the interaction of physical objects. (I) One object cannot be entirely at two places at the same time. (II) Two objects cannot be at the same place at the same time. (III) Two objects cannot act upon

each other at a distance. It follows that interaction of objects is inconceivable, for, according to the last two axioms, objects can never be at the same point at the same time, and can never interact at different points. Two volumes cannot interact, for their non-contiguous parts cannot interact by the third axiom, while the matter of the points on the limit has already been shown to be incapable of interaction. Interaction could only be conceived between finite atomic elements, some with surfaces, some without surfaces. This hypothesis is not logically impossible, but is very improbable. The real objection is not to be raised against the improbable consequences of the three axioms, but against the unanalyzed and uncritical conceptions of space and of objects from which they proceed. Geometry is accustomed to take its starting point from certain simple spatial entities, such as the point, the line, and the surface. It takes them as primitive simple ideas, variables which are not the functions of other variables. But if the relationist theory of space is adopted this would not be the first step of geometrical research. For such a theory it is essential that points, for example, are complex entities, the logical functions of these relations between objects which constitute space. For if a point is a simple thing, incapable of being logically defined in terms of relations between things, then there are absolute positions. This theory is almost universally abandoned, at least, nominally. Hence geometricians must seek to define points as functions of relations between objects. According to the relationist theory, objects do not first occupy space and then act upon each other; they first interact, and space is only the expression of certain properties of their interaction. The fundamental idea, then, of the relationist theory is a certain class of relations, σ. Let us investigate the possible definitions for some of the fundamental spatial concepts and discover what the properties of σ must be if the usual propositions affirmed of concepts so defined are to be true. The world founded upon such a class of relations is the σ-world. Let us try to find a way in which a geometrical point can be defined in terms of the σ-world. Our first step in such a definition must be the definition of a relation $E\sigma$ which is to be called σ-inclusion, which is analogous to the relation of whole and part. There are three whole and part relationships. First we have the relation between a class and a fraction of a class, *i. e.*, the logical relation of 'all and some.' Secondly, we have the whole of heterogeneous parts, in which the parts differ in nature from the whole, as sugar is part of a pudding. And lastly we have the spatial whole and part, which is not to be reduced to an example of the first species of whole and part relation. We have to ask if we can define the last form of relation in terms of the class σ. This σ-relation is called the relation of σ-inclusion, thus avoiding the question as to whether it can itself be called a relation of whole and part. When we have defined this relation we shall be able to define points. The author proceeds to work out this definition of $E\sigma$ in terms of the symbolism of the *Principia Mathematica*. The reflexive, transitive, asymetrical character of the spatial whole and part relation is taken into account, as well as the possible infinite divisibility of space. Proceeding in the same fashion the author works

out the conception of 'geometrical serial classes' converging on points, lines, and surfaces.

W. CURTIS SWABEY.

Le fait moral et le fait social. E. RÉCÉJAC. Rev. Ph., 486, pp. 546–562.

In seeking to give 'moral facts' a scientific objectivity we have tended to limit them to a social reality. But in consciousness there appears an opposition between the moral fact and social fact which is irreducible. They are apparently two modes of existence, or two currents, which refuse to lose themselves one in the other. Each of us conceals under his social appearances some customs (*moeurs*), the inner meaning of which is not penetrated by amateur research, and it is this reality which is the subject matter of Ethics. Our public customs and social conventions are a congealed crust beneath which the moral life conceals itself, not that it is afraid of society, or that it is by nature egoistic, but that it demands a different kind of liberty than that of the street. Primitive man, without being a metaphysician, was capable of taking a speculative attitude towards things, that is, of considering them as outside of himself, and in so doing took a step towards the intellectual and moral life. The opinion that social life arose through the institution of language is false, if we mean by language our highly developed instrument of discursive thought. Human thought did not begin by being discursive, and, further, some social relations must have existed between primitive men, lacking concepts, who gave expression, however, to their tumultuous cogitations by means of symbols. The work of Freud and others on symbolism, promises to throw much light on this stage in the development of human consciousness. Psycho-analysis indicates that the symbol is not a rare and accessory form of thought but a primitive proceeding of psychic activity, and the significance of dream analysis is that it documents us on the most simple mechanism of our being, the dream being a return of thought to its most elementary form. Here we must search for the source of the moral consciousness. The symbol satisfies the need of representing the unrepresentable. It began as a synthetic unity of images by which man fixed his feeling of selfhood, and receives a subjective content when thought grasps and affirms itself over against mere sentiency. The passage from this individualistic period of symbolic thought to the period of socialization was rendered possible by the fact that in the development of intellectual life, certain representations tend to persist because they are capable of producing among a number of individuals the same conscious states. The universalizing of signs would effect a stabilizing of judgments and mark a great advance towards the acquisition of concepts. Social organization arises from the gregarious state through the activity of Reflection, and the fundamental difference between these is the difference between a relation based on physiological attraction, and a relation based on the sentiment of personality. This latter relation gradually assumes the name of Right (*Droit*) and by subsequent definition and refinement this term comes to stand for a narrower field than the original fact. Life has an organic basis,

and there were material conditions for the change from gregariousness to social life. The struggle for existence became economic and two factors or institutions arose, Value and Property, both resting on the moral fact of Personality, without which there could be no sense of value, no need of property. The sentiments of Value, Personality, Right cannot be disassociated, because they do not appear successively, because their origin is indivisible. The moral fact comes before and not after the social fact; it was a part of the body and soul of our first ancestors, that which marked them for civilization.

W. E. BINGHAM.

Le réele, l'apparent, l'absolu. B. BOURDON, Rev. Ph., No. 490, pp. 316–340.

The real properties of objects do not differ specifically, that is in kind, from their apparent properties. Among the various forms, sizes, and colors of objects which present themselves to our sense organs under different conditions, we select some as peculiarly significant and call them real as opposed to merely apparent. Those which appear under the normal, ordinary conditions of perception we call real; those which appear under abnormal conditions we call apparent. If we view a circle with one eye or from an angle, we say that it appears elliptical, when really it is round. The real color of an object is that which appears to an observer with normal eyes in clear daylight. In this way, we might determine conditions of perceiving the real size of an object, the real direction of a line, the real velocity of a movement, etc. This distinction is not primitive, but is in a way arbitrarily adopted for practical purposes. The child gradually learns which of the multitude of appearances that come to him to call real. Real existences as well as real properties are determined in the same way. It may be asked then whether tactual space or visual space is real. Clearly visual space is more normally perceived, more reliable. One may also object that we know real size only when we measure, but measuring is nothing more than determining how many times one perceived length is contained in another. It must be remembered also that in the case of familiar objects we perceive their reality even under abnormal conditions. This is because the normal is the more ordinary and habitual and any extraordinary or abnormal factor is allowed for by means of the mechanism of association. In a like manner, we may speak of remembered reality and inferred reality. The former is real, if the original perception from which it is derived was obtained under normal conditions. The latter depends partly on remembered reality and is connected with the feeling of reality we have when in the presence of normal, ordinary experiences which are new to us. To go one step farther, the absolute itself does not differ in kind from the real or from the apparent. Any other view neglects the fact that what we call an object depends on a number of conditions. To pass from the notion that an object when not perceived by one observer may be perceived by another to the supposition that the object would exist if there were no observers at all, is to neglect the truth that subject and object are correlative terms and that the one can have no meaning without the other. Further, the

word 'existence' is purely human and would have no meaning if there were no human beings. To conclude, let us apply these principles to two philosophical questions. (1) Is it true that we know only appearances? If the real is what is perceived under normal conditions, the idea that we know only appearances reduces to the statement that we know only what we know. (2) Is it true that color, sound, etc., do not exist in the external world? To consider sound as internal is to abolish the real significance of the terms internal and external, for on the same grounds that sound is put in the mind, externality itself can be made internal. Accordingly we must maintain that sound really exists outside our minds.

F. W. A. MILLER.

The New Physiology. J. S. HALDANE. Science, XLIV, 1140, pp. 619–631.

The last great turning point in the development of physiology, which occurred about the middle of the nineteenth century, was a change from the vital force theory to the chemical and physical viewpoint. We have now arrived at a new turning point. We realize that the environmental conditions of physiology are much more complex than they were thought by nineteenth century scientists, and that physiological causal chains are infinitely tangled. The New Physiology does not try to explain phenomena causally, but seeks merely to track out the normal details of life processes. All bodily functions tend to maintain a normal. Thus, the blood contains practically the same amounts of sugar, sodium chloride, and water, although these substances may be present in the body in large or in small quantities. We can understand bodily processes, not through causal explanations, but by recognizing the maintenance of these normals. We must assume the presence of life while investigating any of its phenomena. Physiology is something more than just a department of physics and chemistry. It may be said that these normals must be due to reactions between the organic structure and its physical and chemical environment. But the peculiar activities of the body depend upon the nature of its cells, which are made up of protoplasm. Protoplasm is extraordinarily sensitive to the minutest changes in its environment. Consequently the composition of the blood is almost incredibly constant. But the constancy of the blood is maintained by the combined reactions of the organs and tissues themselves. Thus the structure of the cells depends upon the composition of the blood, and the composition of the blood depends upon the structure of the cells. If this condition is simply a physical and chemical state of dynamic balance, it must be both complicated and unstable; and if it is once broken, bodily processes will go from bad to worse. But a living organism tends to adapt itself to injury and to repair loss. The balance is active, elastic, and stable. Normals are no mere accidents of physical structure, but are expressions of the organism. The physical and chemical viewpoint has failed, not because of inadequate knowledge, but because our present knowledge contradicts the mechanistic theory.

MELVIN RIGG.

Contingence et rationalisme. LIONEL DAURIAC. Rev. Ph., LXXXII, 8, pp. 105–134.

Since the time of Victor Cousin and Bouillier there have been many works embued with the rationalistic spirit. One of these is a brilliant thesis "*Contingence des Lois de La Nature*" by Boutroux. Dauriac raises the question whether rationalism and contingency, which have always been considered opposites, are therefore mutually exclusive. Aristotle has shown us that no notion is clear and distinct in the absence of its opposite. The necessary is thus defined in the function of the contingent. In studying the history of the two concepts, Dauriac suggests that we may distinguish three periods; (1) a moment of thesis in which the idea of the necessary makes its appearance, (2) a moment of antithesis between contingency and necessity, (3) a moment of synthesis. In the first period one might consider that mankind spent its time in fearing, desiring, and believing, a period anterior to reflection. Thus arose, during this time, a fatalistic belief from the fear of destiny. At the coming of the philosophical spirit this gradually decreases. In the fragments of Heraclitus one may see the idea of fatality at the very moment of its changing, an affirmation of the order of the world with allusions to the irrevocable decisions of Destiny. Since Heraclitus there has been a period of antithesis. If the first success of necessity was due to Heraclitus the final victory falls to Descartes and the Cartesians. But the human spirit cannot rest there; able to deduce man wishes to be assured that the facts conform to his deductions. The progress of experimental science thus brings up again the notion of contingency. And the question arises whether contingency is capable of entering into a co-operative alliance with necessity. Necessity is an expression of the order of the world, but it seems that it is not the only expression of it. Mechanism as the sole principle governing the universe would make this order precarious. Is it not possible then, Dauriac asks, to introduce into the cosmic order elements of contingent origin and essence? Boutroux does not question the truth of the laws of nature any more than Kant does. It is not the absolute contingency of reality which is discussed, but the contingency of the laws of nature. The problem is whether philosophy can explain the government of the world leaving only a contingent origin to these laws. From one group of laws to another there must, in this case, be a true advance, real novelty. The world is a hierarchy, contingent in its essence and in that of the species and individuals which it brings forth, contingent in the acts by which these individuals express themselves. The precaution taken by Kant to assure the safety of liberty by a kind of exile is thus a useless one. But empiricism is not the substitute for Kantian intellectualism, since empiricism excludes necessity. The empiricism of Boutroux is only a 'methodical empiricism'; he has kept the essentials of Kant's system, the moral law and the postulates. O. Hamelin has spoken of the moral law as not 'necessitating' but 'necessary.' In other words the moral law would be not less necessary if never obeyed. Viewed in this light necessity, far from excluding contingency, is supported by it. The doctrine of Boutroux is thus an anti-intellectualistic Kantism. Like his master,

Lachelier, Boutroux did not separate the interests of Criticism from those of Morality and Religion. Science, art, religion, aesthetics are all points of view of the intellect on reality. To the old metaphysics is left now only a moral magistracy. "Kant believed that he saved liberty in exiling it from the world; Boutroux has saved human reason in freeing it from all contact with a nature made to serve it for a step-ladder and not for a seat." Dauriac, in order to show that the so-called crisis of contingency is perhaps really a necessary moment in contemporaneous rationalism, demonstrates how this doctrine of Boutroux could have arisen in another way, coming from Renouvier, Augustin Cournot and Auguste Comte. Comte is the true Kant of French philosophy; his lectures on Biology may be compared to pages of Kant on the dialectic of teleological judgment. He does not mention contingency, but the notion nevertheless permeates his pages. Boutroux on the whole knew Renouvier better than Comte however, though he does not like Renouvier declare against the noumenon. The question must now be answered, says Dauriac, whether contingency is compatible with order. Plato speaks as if necessity were susceptible finally to a difference of degree. Is not this equal to a difference of quality in such a concept as necessity? Philosophy then brings a new type of necessity which acts no longer *a tergo* but *a fronte* in imitation of finality. Mechanism can no longer do without a complement in lack of which all true *raison d'être* is also lacking to it. In Boutroux this viewpoint reaches its highest expression: "Resolutely hostile to blind and brutal necessity contingency itself advances before a regime of constancy through which it is indeed difficult not to perceive reason at work." Sooner or later then, Dauriac concludes, it will be inevitable that the seal of intelligence will efface every trace of contingency.

VIRGINIA BAKER.

La théorie cartésienne de l'énumération. R. HUBERT. Rev. de. Mét., XXIII, 3, 489–516.

The fourth rule of the Cartesian method, that of enumeration, is obscure, and yet it is essential to an understanding of the first three rules, with which it forms an indivisible unity. The first three rules are those of evidence, of division, and of progressive order. These are made clear in the *Discourse*. The theory of enumeration is expounded in the *Regulæ*, which Descartes left incomplete. Descartes was hostile to pure empiricism and scorned history and geography as not founded upon reason; the generalizations to be founded upon casual observations were superficial. Is, then, experience excluded from his method? No, but the problem is to determine the nature, conditions, species, and rôle of experience. What method permits us to interpret experience, without omitting any part, and grasping its ultimate elements? Descartes had little use for the scholastic logic of extension, of genus and essential difference. His objection was that there are points where immediate experience suffices for itself and is fundamental to science; the scholastic method obscured this experience. Intuition is the primary form of evidence. It is

not sensible perception, but intellectual apprehension. Intuition reveals to us the simple elements which enter into the composition of things. It also reveals their essential connections. Intuition is limited to some single particular relation, and is condemned to immobility. From these particular relations, analysis can only bring out what is contained in them. There is also necessary, then, a continued movement of thought, a synthesis. The character of this Descartes failed to make clear. It had for him, however, two characteristics: It was not instantaneous, but successive, and it possessed a derivative evidence, both in contrast to intuition. All reasoning to distant consequences requires a multitude of disconnected judgments as premises. Deduction is unable to connect the diverse intuitions, since it depends upon memory for the continuity of its process. The problem of enumeration is to enable science to grasp the real in its totality, and to give a certitude equal to that of intuition to deduction. Enumeration must be the process which completes intuition and gives us absolute certitude. To know is to discover the simple natures which enter into the composition of things, to establish relations between them, and to arrange them in a serial order, such that one ends by logically reconstructing the concrete reality. Composite natures, which are not composed by the intelligence, can only be known by experience. This function of experience does not contradict Descartes' affirmation that experience is only to be believed when it bears on simple natures, for objects so known are but problems of which the solution is unknown. Among the multiplicity of consequences which might be drawn from principles, experience indicates some which are worthy of attention, as part of the order of natural things. If all science consists of connections between simple natures, then all science must be conceived as a universal mathematics. In the *Regulæ* the principle, of the *Discourse*, of division of difficulties is combined with the principle of enumeration; that is, it is not sufficient to search the simple natures which enter into the composition of a complex question; one must know that he has them all. What, then, is enumeration? One interpretation is that it is a means of verification, a logical process permitting the elimination of memory with its incertitude. That is, it permits that a series of relations be run through so rapidly that the whole is grasped in a single intuition. But there are texts which oppose this interpretation, presenting enumeration as a process of classification, others which regard it as necessary to putting problems in equational form, and still others which regard it as essential to the establishment of logical order. A second interpretation of enumeration is that it is a process, not of verification, but of research, supplementing intuition. It is, thus, an inductive inference, or an analogical inference; an operation which draws a conclusion from a collection of separate things. There is some truth in this view, but we must not forget the controlling and verifying function elsewhere ascribed to enumeration. Enumeration is, in fact, an essential complement of the method for determining problems. It insures that we have taken all the elements into account. It is the complete investigation of all objects presented to thought. Intuition lets us perceive the simple elements

of an object; deduction reconstructs the object; enumeration alone makes us sure that the re-composed object corresponds adequately with reality. It is thus the condition of the harmony of thought and things. It further shows what problems are soluble and what insoluble. It is essential to classification, not extensive classification of genus and species, but comprehensive classification. It arranges things according to essence, *i. e.*, according to the simple natures of things. Enumeration is really perfect induction, interpreted in comprehension. It is not complete in the sense of being founded on all possible cases, but perfect in the sense of attaining all the absolutely necessary elements of an object. Enumeration is the complement of intuition, for in enumerating all the circumstances of a definite question, it alone renders possible the perfect equation of thought with reality. It is such because nature is such that things are reducible to simple elements in necessary relations; because everything is reducible to order and measure. Enumeration expresses the preoccupation with the real and concrete of the Cartesian method.

W. CURTIS SWABEY.

The Philosophy of Vladimir Soloviev. PROF. L. M. LOPATIN. (Translated by Alex. Bakshy.) Mind, New Series, No. 100, pp. 425–460.

Vladimir Soloviev was born in 1853 and died in 1900. His theories, as expressed in *The Critique of Abstract Principles* and other works, were the first original expressions of philosophic thought produced in Russia. Influenced by the spirit of his time, he looked for an early triumph of good in the world,—during his youth and while in the clutches of materialism through a social revolution, and in later life, after his idealistic nature had asserted itself, through a theocratic organization of mankind. After an exhaustive study of the history of philosophy he attempted to reconcile the systems of Schopenhauer and Hegel. Misunderstood by his own people and unable to believe that philosophy must follow in the wake of science, Soloviev originated a theory in opposition to all the western schools. Seeing a weakness in the system of Kant and his successors and convinced that a new method was necessary, he took up his position as a mystic in spite of the antagonistic attitude of the time. Supplementary to his faith in the final triumph of truth Soloviev had a strong belief in the spiritual nature of the world which at the same time explains the vitality and concrete character of the system and is responsible for its chief defect, namely, the assignment of equal value to all the links in his dialectically constructed system. The system hinges around the ideas of spirituality of all being, absolute all being, and God-mankind. The imperfection of the world is caused by the opposition between the world of space and time and the real world of which God is the source, and it will be done away with upon the attainment of the highest good through the perfection of man. Since absolute unity would deprive matter of all its material properties and philosophic realism attempts to eliminate all subjective qualities from reality, the only logical materialism is atomic in nature. The only thinkable reality which would give these atoms the property of impenetrability and

extension is impulse and resultant resistance. But impulse is known only from the inner experience of our spirits and the real is, therefore, immaterial and monadic in its nature. Because of the impossibility of experiencing the real, whether atomic or monadic, only phenomena can be truly known, and since only my sensations exist for me, things are only possibilities of my sensation and "what actually exist are only the phenomena of consciousness and not of my consciousness, since I, as I, do not exist, but of consciousness in general, independently of a conscious being or a real subject of cognition." Rationalism, on the other hand, if consistent, results in Hegel's doctrine of the idea as the only reality, which is inconceivable, and therefore illogical, in that it passes from the abstract to the real and contradictory in supposing an idea preceding both cognitive subject and that which is cognized. The absolute principle of things, or God, is a living unity of the diverse manifestations in whom is contained as an *all* a potentiality of the manifestation of his creative genius. This *all* "is the world inasmuch as it is contained in God, inasmuch as it eternally faces God as the ideal image of his creation, since in God and for God all is eternal." Soloviev relates the world to God as a universe in himself which is distinct from himself and yet greater than an idea because an indissoluble element of his being, and by this relation the world is revealed as good, truth, and beauty. Through the exercise of its freedom the world soul fell off from God, retaining only a suppressed longing for its former fullness of being and has become the mutilated image of the ideal world which the present material world now presents. The unity of the eternal world is expressed in terms of space filled with atoms, its ever present eternity in terms of time, and its self definition in terms of mechanical causality. Three phases in the permeation of the elemental chaos by the unifying power of God are shown in mechanical, dynamic, and organic unity. The process culminates in man, from which point the purification of all evil is to proceed till a complete unity such as that exemplified in Christ, is reached. From these general views Soloviev deduced his moral ideals "Have God in thyself" and "Treat everything in the manner of God" as well as his social ideals of freedom, equality, and brotherhood. In view of the fact that Soloviev still has many followers, that he took up this point of view after studying the modern theories, and that he pointed out the only escape from the depressing contradictions of philosophic movements of his time, it can hardly be maintained that his position has been entirely condemned by history. In the face of world opposition he "called all and sundry to the *true* light."

CHARLES H. WRIGHT.

La Conscience tactile-motrice pure. TH. RIBOT. Rev. Phil., XLI, 7, pp. 26–43.

Alongside the psychology of intellectual states and that of affective states, there is rapidly growing up and making a place for itself, particularly in America, a 'motor theory.' Physiologically, it affirms the dominance of the motor center in cerebral activity; psychologically, it regards movement as the unifying, co-ordinating, regulating element in experience. The theory has

been ably criticized by Pillsbury, with whose conclusion the author of this article agrees, that a great but not an exclusive importance is to be attached to movement. The present article is devoted to a study of consciousness in the remarkable case of persons both blind and deaf, and usually without the sense of smell also, from early infancy. Such persons know the world only through tactile and kinaesthetic sensations. With the general organization, physical and nervous, of the highest of animals, their senses are on the plane of the lowest, the plane of undifferentiated touch. The richness of their psychic life is found to be remarkable; they not only orient themselves intelligently in a complicated environment, but also form complex associations, generalize, and think abstractly. They interpret character and sense the meanings of things through tactile imagery, and their affective life seems to be practically normal. In the case of Helen Keller we meet with a fertile imagination and great powers of literary invention. Particularly striking is the free and effective use of visual and auditory imagery in composition, though we find a certain failure to distinguish between what is imagined and what is remembered. Such persons commonly succeed in giving some meaning to the language forms relating to sights and sounds, and often imagine that these meanings are of the same nature as those which the words have for normal individuals. The great problem in this branch of abnormal psychology relates to the way in which one sense can substitute for and replace another. Totally blind and deaf persons can distinguish large numbers of associates by their characteristic body odors or by the feeling of their footfalls, can feel the vibrations of loud sounds and even to some extent distinguish pitch, and commonly know in some way when they are approaching an obstacle such as a wall or a tree in their path. The secret of the power is to be found in the primary characteristic of living beings, the power of *adaptation* or learning. Biologically, it is best understood in the light of Lamarckian rather than Darwinian principles, attention acting as an agency for fixation. Careful tests of the tactile sensitiveness of the fingers of the blind have shown them not above the average, and the reading finger is less rather than more sensitive than the others. The superiority of adaptation is evidently in the kinaesthetic sense, a sufficient indication of the importance of movement in the psychic life.

F. H. KNIGHT.

La Logique des classes et la théorie des ensembles. H. DUMFUMIER. Rev. de Mét., XXVI, 4, pp. 607–611.

Attempts to reach the fundamental concepts of mathematics have produced symbolic logic, and the algebra of logic, a renaissance of logical study, and a realization of the intimate connection between logic and mathematics. In this connection it is worth while to consider the relation of the mathematical theory of ensembles to the logical calculus of the classes, which has as its fundamental principle the idea of subsumption; and includes multiplication, addition, and negation in its processes. Even when the algebra of logic is taken as quite distinct in its operations from that of space and number we still fail to

explain satisfactorily the relation of the individual to the class, and the artificiality of the reduction of logic to a quantitative relation becomes evident. Such interpretations do not emphasize sufficiently the rôle of negation, the possibility of being either affirmed or denied seemingly being disregarded as fundamental in logic. In the notion of ensemble mathematics is considered as the point of departure, and yet the concepts of logic seem to terminate in the effort of mathematics towards a more general exposition of its fundamental ideas. The '*Calcul des Classes*' appears as a generalization of the theory of ensemble. E. D. PUGSLEY.

Logical Work of Leibniz. PHILIP E. B. JOURDAIN. Monist, XXVI, 4, pp. 504–523.

Leibniz's notions of infinitesimal calculus and monadology indicate that his philosophy and his mathematics were founded in his logic. When but eighteen years of age he concluded that "all ideas can be reduced by decomposition to a small number of primitive and indefinable ideas." From these, completely enumerated, an alphabet of ideas could be made; and then by combination any complex idea could be formed. Further, he maintained that the principle application of this art of combination is in logic, especially in the logic of discovery, since the fundamental problem of the logic of discovery reduces to a problem of combinations. Then, on analyzing all concepts by definition, that is, by reducing to a number of simpler concepts, we ultimately arrive at the fundamental and indefinable concepts. These primary concepts Leibniz represents by some character, which he doubles for the second order, and so on. He would then represent a compound term by the product of the terms contained. This was his idea of a "rational script," which he conceived to be a powerful agent of reason, and valuable in promoting commerce. This "rational language," which at the same time would be a calculus or algebra of thought, was, however, more difficult to construct than he had first believed. In order to accomplish this he set about studying the living languages in order to extract the common simple ideas. He hoped to discover the "Characteristic" whose conditions he formulated to be a basis of an algebra of logic; a "*calculus ratiocinator.*" When this was put in use he expected reasoning would become machine-like, the mind being relieved of all except the solution of the problem according to algebraic-like rules.

E. D. PUGSLEY.

Sensation and Perception. GRACE DE LAGUNA. J. of Ph., Psy., and Sci. Meth., I, Vol. XIII, 20, pp. 533–547; II, Vol. XIII, 23, pp. 617–630.

I. *The Genetic Relation.*—The author criticizes the doctrine of the genetic primacy of sensation. The general facts of evolutionary development support the view that the beginnings of conscious life possess a minimum of diversification and specialization. Psychology has held the view, up to the last quarter of a century, that analytic simplicity and genetic primacy were one and the same thing. Such a view is based on the assumption that the infant is capable of experiencing the qualitatively distinct sensations of the adult.

This assumption, the author shows, is rather questionable. In the first place the brain is now regarded by modern psychologists as the organ of bodily integration. "The chemical discharge of cells in the cortex is no longer regarded as the correlate of conscious processes;" instead we must regard certain modes of functioning of the nervous system as conscious. As the infant clearly has not the functionally differentiated sensory centers of the adult one cannot suppose him to have the distinct sensations of the adult. In the second place there is the evidence of the child's behavior. Here it is apparent through observation of the responses evoked by the stimulation of the special sense organs that the child is incapable of discriminating sense-qualities. His responses may be termed type reactions, the earliest being movements of the organ or part stimulated to facilitate or prevent further stimulation. The only discrimination shown at first seems to be between what is and is not pleasant. Preferential discrimination as in Mrs. Wooley's color tests is not sufficient evidence that a qualitative difference is perceived between two stimuli: A baby's world is one of imperative urgencies; "what is and what it demands are telescoped together." It is only the adult, for whom the sensuous world has lost its urgencies, who can gain the concept of "pure sentience."

II. *The Analytic Relation.*—The author discusses the analytic relation of sensation and perception and the conditions under which sensations are experienced. In the first place it is "theoretically unfruitful to regard the sensation as an element of the percept conceived as an existential complex." When we treat the percept as a complex of sensations, its most salient feature, the fact that it is meaningful, is quite unaccountable, for sensations have no known properties or modes of behavior which would help us to understand the complexes into which they enter. In the second place there is no possible empirical evidence to support such a doctrine. The doctrine of specific energy which forms the basis for this theory may be criticized on the ground that the experiencing of specific sense qualities depends as much on the condition of attention as on the stimulation of the proper end organs and sensory cells. Not every stimulation of a given set of sensory cells yields the sense qualities they are capable of mediating. The problem is then under what conditions these sense qualities are experienced. When we look to the mode of functioning of the sensory cells of the cortex it is seen that each of the groups comes to be a unit in a multitude of functional systems,—a unit in a different multitude from every other. The author then offers as a supplement to the doctrine of specific energy the hypothesis that "the functional indeterminateness or independence of the sensory cells of the cortex is the essential condition of their mediating the experience of sensation qualities." The condition under which the distinctive sense qualities are experienced is the disintegration of the functional group and the independent functioning of the cells in question. In accordance with this hypothesis the psychological doctrine that the sensation is an element of the perception must be given up. We may also reach through it a more fruitful conception of the nature of psychological analysis and the problem of meaning.

VIRGINIA BAKER.

NOTES.

The sixteenth annual meeting of the American Philosophical Association was held in New York City on December 27, 28, and 29, at the invitation of the American Association for the Advancement of Science and of the Department of Philosophy of Columbia University. Professor A. O. Lovejoy, of Johns Hopkins University, President of the Association, presided and delivered an address "On the Conditions of Progress in Philosophy." This together with a full report of the proceedings of this meeting will be published in the March number of the PHILOSOPHICAL REVIEW.

Victor Delbos, Professor of the Philosophical Faculty of Letters in the University of Paris, died on June 16, 1916. Delbos was born in 1862. Chief among his contributions to the literature of philosophy are the following: *Le problème moral dans la philosophie de Spinoza et dans l'histoire du Spinozisme*, 1893; *La philosophie practique de Kant*, 1905 (crowned by the Academy); *Les fondements de la metaphysique des moeurs de Kant*, 1907; *Le Spinozisme. Cours professé à la Sorbonne en 1912–13*, 1916. He contributed to the PHILOSOPHICAL REVIEW, Vol. XXIII (1914), pp. 595 ff., an article entitled "French Works on the History of Philosophy from 1909 to 1913." Delbos is one more among a number of scholars, eminent both in achievement and character, citizens of the warring nations, who have died in the full strength of their maturity since the beginning of the European War.

As the REVIEW goes to press, news comes of the sudden death, on December 16th, of Professor Hugo Münsterberg, Professor of Psychology, and Director of the Psychological Laboratory, Harvard University. We hope to publish at a later date an account of his life and achievements.

Dr. H. M. Sheffer has been appointed Lecturer in Philosophy for this year at Harvard, and is giving the courses in Logic announced by Professor Royce.

We give below a list of articles in current philosophical magazines:

THE AMERICAN JOURNAL OF PSYCHOLOGY, XXVII, 4: *K. M. Dallenbach*, The Measurement of Attention in the Field of Cutaneous Sensation; *Helen Clark*, Visual Imagery and Attention; *Garry C. Myers* and *Caroline E. Myers*, Reconstructive Recall; *H. E. Conard* and *G. F. Arps*, An Experimental Study of Economical Learning.

THE AMERICAN JOURNAL OF THEOLOGY, XX, 4: *James Moffatt*, The Influence of the War upon the Religious Life and Thought of Great Britain; *Alfred Williams Anthony*, The New Interdenominationalism; *R. R. Marett*, Origin and Validity in Religion; *Carl Clemen*, Buddhistic Influence in the New Testament; *E. Jordan*, The Meaning of Charity; *Ernest D. Burton*, Spirit, Soul, and Flesh.

THE BRITISH JOURNAL OF PSYCHOLOGY, VIII, 3: *Godfrey H. Thomson*, A

Hierarchy without a General Factor; *Carveth Read*, The Relations between Magic and Animism; *W. G. Smith*, The Prevalence of Spatial Contrast in Visual Perception; *May Smith*, A Contribution to the Study of Fatigue; *Bernard Muscio*, The Influence of the Form of a Question.

THE HARVARD THEOLOGICAL REVIEW, IX, 4: *Giorgio La Piana*, A Review of Italian Modernism; *Romolo Murri*, An Italian Modernist's Hope for the Future; *Benjamin W. Bacon*, The "Son" as Organ of Revelation; *James H. Leuba*, Theology and Psychology.

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